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ISLANDS OF GREEN

NATURAL HERITAGE
PROTECTION IN
ONTARIO

S. Hilts, M. Kirk, R. Reid and Contributors

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ISLANDS OF GREEN

NATURAL HERITAGE PROTECTION IN ONTARIO

Compiled for the
Natural Heritage League

by

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and

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Ontario Heritage Foundation
77 Bloor St. W.,
Toronto, Ont.

1986

FORWARD

Several years ago the Ontario Heritage Foundation recognized that heritage conservation included those remaining areas of natural beauty or refuges for rarer plants in this Province, as well as its historic man-made treasures. To realize this concept, in 1982 the Natural Heritage League was established, as a direct result of the 'Toward Natural Heritage Protection in Ontario' Conference, on Nov. 22, 1982.

The purpose of the League is to provide a coordinating mechanism for private and public agencies related to priorities for the identification, protection and management of natural areas in Ontario. Any private or public agency which includes in its objectives the protection of natural areas may participate in the activities of the Natural Heritage League.

It is our hope that this manual on natural heritage protection will involve more of our citizens and facilitate the work of those already devoted to this worthy cause.

We take pleasure, therefore, in presenting this book and hope it will be of use to many citizens of this province as they work together to protect our natural heritage.

G. H. U. Bayly
Chairman,
Ontario Heritage Foundation

The **ONTARIO HERITAGE FOUNDATION** was created to assist and encourage the preservation of our heritage and culture. Gifts and bequests of real or cultural properties are held in trust for the people of Ontario and managed by the Foundation through its board of private citizens. Many historic structures and scenic land areas have been preserved or restored in order to maintain the heritage of this province and its people.

The **NATURAL HERITAGE LEAGUE** operates under the auspices of the Ontario Heritage Foundation to encourage co-operation of various government and non-government agencies working for the preservation of Ontario's natural heritage.

MEMBERSHIP 1986

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*Stewart Hilts
Malcolm Kirk
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Guelph, Ontario March 1986

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TOWARD NATURAL HERITAGE PROTECTION

S. Hilts, M. Kirk and R. Reid

“Perhaps the most urgent danger to your enjoyment of the natural world is the impending disappearance of your nearest ‘remnant natural area’. Everyone knows at least one: the acre and a half of second growth ash bush, due for subdivision; the shady ravine soon to be disembowelled for a trunk sewer line; or that little marsh competing with crop-producing acreage for survival in farming country. These are remnants from an earlier richer landscape — all have been influenced by human activities, and some have been badly abused. But for great segments of the Canadian population, these remnant areas are one of our closest and most pervasive contacts with natural communities of plants and animals. . . . It is perception of this organic diversity that is recognized to be such an important, if intangible, ingredient in the overall sense of environmental quality in the countryside, a quality being sought by rural dwellers and urban visitors alike.”

(Francis, 1977)

Over the last 150 years, the face of Ontario has been fundamentally altered. The great hardwood and pine forests of the south have been cleared as the land became host to farm and factory. The innumerable flocks of passenger pigeons that once darkened the skies have been driven into the abyss of extinction, victim of overhunting and habitat loss. Wildflowers that were once common now are rare.

In a myriad of small decisions, that pattern of loss continues. Over 70% of southern Ontario's wetlands have been converted to other uses and the roster of drainage and filling continues to grow. The area of woodlots in the biologically rich Carolinian zone has declined 30% since 1958. In Essex and Kent counties, less than 3% of the landscape remains in forest. In the rest of southwestern Ontario, forest cover now averages only 7 to 15 percent. In essence, those natural areas that remain have become islands of green in a sea of farmland and city.

Even in the north, the conversion of original forests to second growth timber, managed for industrial production, places the hand of man heavily on the landscape. Nearly 200,000 hectares of boreal forest are harvested each year, and sensitive species such as woodland caribou retreat further northwards before the onslaught.



CALYPSO

This exquisite spring-blooming orchid is rare in southern Ontario, and may only survive there if its specialized habitat is protected.

The need to protect remnants of Ontario's natural heritage is apparent, but have we the tools adequate for the task? This book outlines many of the tools we do have, ranging from the traditional acquisition projects of government agencies to more recent innovations in cooperative action. One factor seems very clear — effective conservation of natural areas will only take place with the support of an informed public and the participation of concerned citizens directly in a range of protective strategies.

Concern about protection of natural areas is not a recent phenomenon, especially in countries with greater pressures on the landscape than ours.

The organized approach to countryside protection started in Great Britain, an ancient crowded island with strong roots in the land. The privately funded British National Trust and its Scottish counterpart, over the past 90 years, have protected many historic buildings and thousands of select areas of landscape which are regarded as part of the nation's patrimony. Operation Neptune, a special campaign, secured nearly 600 kilometres of unspoiled coastline in recent years. Similarly, since 1949, the government-sponsored British Nature Conservancy has rescued many ecologically significant areas on a systematic basis. Together, these agencies comprise 'one of the great ideas Britain has given the world'.

The American Nature Conservancy and the National Audubon Society are non-government organizations that have flourished over the past 40 years, responding to a growing concern by Americans over the loss of natural heritage and the decline of once common species of plants and animals. Their success in natural area acquisition can be attributed, in part, to the fact that many directors and staff were recruited from the business world. Their expertise and contacts allowed them to draw heavily on private and business philanthropy and to exercise great skill as realtors. The Nature Conservancy developed sophisticated techniques for landsaving, and is sometimes employed by governments for assembly of threatened areas when the machinery of bureaucracy is too slow.

Conservation came early to Canada as well, but it has progressed very slowly. Our first national park, at Banff, was set aside more than a century ago and Ontario's Algonquin Park was created in 1893. The provincial parks system grew most quickly in the 1950's and the early 1980's with over 200 protected areas now included in its roster. Conservation Authorities also became active protectors of nature at the regional level and there are now about 275 conservation areas scattered across southern Ontario, many protecting significant natural areas.

Citizen groups have also played an important role. The Federation of Ontario Naturalists, incorporated in 1931, was one of the first. The Nature Conservancy of Canada has become the major private agency involved in land acquisition in recent years, often with the assistance of funds from private Foundations. Many other groups have also played a part, either in acquiring threatened natural areas or in encouraging their protection through land use planning.

With the entry of the Ontario Heritage Foundation into the natural heritage field in the early 1980's, conservationists began to seek a new emphasis on cooperative action. The result was the formation of the Natural Heritage League (NHL), a coalition of government and non-government agencies with a common interest in saving natural areas. As well as coordinating acquisition efforts, the NHL fosters a search for innovative methods, such as the Natural Heritage Stewardship Program, which encourages private landowners to practice good stewardship of their own land, through a land-owner contact process. This book reports on the promise of many of these new approaches.

In large part, this book is aimed at citizens who share our concern about the declining natural heritage of Ontario and who want to join in the efforts to save as much as possible. In the knowledge that threats to natural diversity come in the form of thousands of different issues, it tries to give an overview of the options that an individual or group might use to protect their local natural areas. It also gives some direction on how to get started.

Inevitably, one book cannot do justice to all the complexities of a subject as broad as conservation. Several other manuals (Andrews and Cranmer-Byng, 1978; Eagles and Adindu, 1978) provide more detail on specific aspects and should be used to complement this text. In specific cases, you will find that there is no substitute for dialogue with all sorts of people, both within and outside government, to help chart the best course.

This manual deals with only one aspect of conservation — the definition and protection of natural areas. Other topics, such as laws to regulate the harvest of wild animals or control of toxic chemicals, or even the myriad of government programs and policies which influence the natural environment, lie beyond the scope of this volume.

Our treatment begins with a brief exploration of the need to protect natural heritage and then a chapter on collecting background information to make your case. Six chapters discuss various methods and agencies involved in land conservation, followed by a synopsis of management problems. The final chapter presents a series of case studies which illustrate the themes throughout the book.

VANISHING HERITAGE IN ONTARIO



GREY-SAUBLE CONSERVATION AUTHORITY

READY



GREY-SAUBLE CONSERVATION AUTHORITY

GOING



GREY-SAUBLE CONSERVATION AUTHORITY

GONE

WHY PROTECT NATURAL HERITAGE?

S. Hiltz

The next two decades are crucial to the planet. We are wiping out our human and natural heritages and it will be your responsibility to maintain a planet we can live in.

(Robert Bateman, on receiving an honorary doctorate at the University of Guelph, 1985)

The people of Ontario have inherited a rich and diverse natural legacy. Nowhere else on the continent can such a range of flora and fauna or geology be found within one province or state, from southern deciduous forest on the shores of Lake Erie to arctic tundra on the shores of Hudson Bay, from tall grass prairie in the west to elements of the maritime forest in the east.

Over the past two hundred years of settlement though, Ontario's landscape has been heavily influenced by man. Forests have been cleared; no large original stands of majestic White Pine, once a cornerstone of Ontario's economy, have been saved. Wet prairies have been drained and ploughed; only a handful of hectares remain in a natural state. Pressures continue to grow on these islands of green as other land uses bring more immediate economic return; more of our natural heritage is lost.

To the uninitiated, Ontario appears to have abundant natural forested areas left. Simply in terms of hectares we do. However, it is the diversity we are losing. Thousands of hectares of some forest types still exist, but most of these are second, third, or even fourth growth communities. They are often poor in both plant and animal species composition. Even today, forests are usually being managed poorly, reducing their diversity even further, whether they be the vital boreal forests of the north or the valuable hardwood forests of the south.

Many plant community types which originally contributed to the natural diversity of our landscape are now in very short supply. Among these are several types of wetlands, especially the marshes and fens which occur along Great Lakes shorelines, nesting sites of some species of colonial birds, large tracts of southern deciduous forest, and a variety of others. In addition, a significant number of individual species are now clinging to only a few localities in the province. Some are found in few other locations in the world.

The task of protecting natural areas in Ontario does not therefore imply simply accumulating land. It implies rather a very sensitive and careful attempt to protect those particular elements of our natural diversity which are becoming rare. We seek to save at least one example of every major vegetation community type and landform in the province, and the habitat of rare wildlife species. Even this is an enormous task, and we are only now beginning to gather the basic knowledge to enable us to undertake the task properly.

But it is a vitally important task. The ultimate value of natural areas may be intangible, not easily measured in dollars, and the benefits may only accrue in the distant future. However, if life as we know it is to be maintained, it is necessary to protect the natural heritage on which that life depends. Just as we must protect agricultural land from urbanization, people from toxic chemicals, and forest resources from poor management, we must give attention to saving the natural diversity of the province.

In this chapter, the reasons for protecting natural areas are discussed. These reasons are generally of two types, the practical or utilitarian (measured in terms of utility to man), and the ethical (in terms of other species' right to exist). Both will be outlined, after a brief discussion of definitions.

DEFINITIONS:

Natural areas can be defined in a number of ways, but in this book the term generally refers to remnant natural environments in landscapes that are otherwise extensively modified by human activity. This does not mean that no human disturbance has ever occurred in a natural area, since such a criteria would disqualify virtually every woodlot in southern Ontario. As well, the term includes significant geologic and glacial features, which may be well represented in disturbed sites such as quarries.

In most "natural areas", however, natural ecological processes and natural vegetation are dominant. Often these areas have already been designated, as environmentally sensitive or significant areas, ecological areas, or Areas of Natural and Scientific Interest (ANSI's). ANSI's are areas that have been chosen by the Ministry of Natural Resources as most significant from a provincial perspective. Since they include areas of scientific interest, some sites may be highly disturbed, especially in the case of earth science features. Because our state of knowledge is far from complete, you may be dealing with a significant natural area that has not been given any formal designation.

In a practical sense, natural areas are usually good examples of vegetation communities or wildlife habitat, or areas where one or more rare species or geologically significant landform features of some kind are found. Essentially, priorities for natural heritage conservation revolve around protection of all elements of the natural diversity which originally made up Ontario's landscape.

A further elaboration of sites which might be considered significant is found in Chapter 3 where the evaluation of natural areas is discussed.

UTILITARIAN VALUES:

We are part of the environment.

Concern with natural areas is clearly for man's own selfish benefit in part, as human welfare is ultimately tied to the condition of our environment. Natural areas can perform several valuable functions from which man benefits directly. These values are roughly categorized and summarized on the accompanying chart (Figure 1). A number of authors have documented and discussed these and other values fully; some of the classics are noted in Figure 2.

The conservation of genetic resources as a reason for protecting natural areas and individual species merits elaboration, for it is increasingly being recognized as one of the major 'hidden problems' facing the world. Many do not realize the extent to which we are dependent on crop breeding for our food supplies, or on native species for drugs and other elements of modern medicine. The World Wildlife Fund's book on plants entitled *Green Inheritance* (Huxley, 1984), lists an astonishing range of uses man makes of plants.

World food supplies are largely based on a few major crops which feed billions of people. Scientists have bred ever better varieties of these, but pests and diseases keep evolving so that breeding must be ongoing to avoid major crop failures. By adopting large scale monocultures we have gained productivity, but exposed ourselves to the dangers of massive crop failure in an unprecedented way.

Of particular concern is the narrow genetic base upon which some crops rest. For example, as the *World Conservation Strategy* (I.U.C.N., 1980) points out, most of the Brazil banana crop descends from one tree; the entire U.S. soybean industry is based on half a dozen plants from distant Asia; and many other crops are similarly based on an individual source of genetic material. It is indeed ironic that today, just as we are on the horizon of 'biotechnology' which may be able to provide massive gains in crop breeding, we are also on the horizon of losing much of the raw material.

Such potential utilitarian values are not merely of interest to nature lovers; they hold the potential to make very real contributions to our economy. Indeed, Norman Myers in his book *The Sinking Ark*, a review of the earth's endangered species, claims that:

It is precisely in terms of business, the economic underpinning of our lives, that we may well feel the greatest impact. Extinction of species is an **irreversible** loss of unique natural resources, now and forever. When a species disappears, it is gone for good.

... Of the one percent of all species that have been intensively investigated for their economic value, many thousands already make sizeable contributions. In light of experiences to date, it is a statistical certainty that earth's species potentially offer many utilitarian benefits to society.

(Myers, 1980, 33)

FIGURE 1

UTILITARIAN VALUES OF NATURAL AREAS

Scientific Values

- Research sites — Some natural areas are invaluable sites for scientific study and research.
- Environmental benchmarks — Natural areas can be used as benchmarks against which to measure changes in other ecosystems.
- Environmental indicators — Some species found in natural areas can and do serve man as indicators of environmental quality, especially with regard to levels of toxic chemicals in the environment.
- Education — Many publicly owned natural areas serve as heavily used sites for outdoor education.

Environmental Values

- Ecological function — Some natural areas perform valuable ecological functions such as aiding groundwater recharge, slowing spring runoff, and controlling erosion, as well as providing wildlife habitat and economic return from forestry.

Cultural Values

- Recreation — Some natural areas provide unique public recreation opportunities, in the true sense of being places for re-creation, refuges of tranquillity in a busy man-made world.
- Aesthetics — Islands of green in the rural landscape have high aesthetic value; in urban areas they often enhance adjacent property values, and thus municipal tax revenues.
- Artistic inspiration — Nature and the wilderness have been vital inspirations for artists and writers throughout Canadian history, a basic background of our culture.

Genetic Values

- Genetic resources — Natural areas serve to protect and provide habitat for all the species of flora and fauna which constitute our genetic resources, vital materials of as yet unknown use to man in the future.

S. Hilts

FIGURE 2

FURTHER READINGS ON THE VALUE OF NATURAL AREAS

- Robert Allen *How to Save the World*
Scarborough: Prentice Hall, 1980.
- Paul Brooks *Speaking for Nature*
San Francisco: Sierra Club, 1980
- Rachel Carson *The Sense of Wonder*
New York: Harper and Row, 1965.
- Paul and Anne Ehrlich *Extinction*
New York: Ballantine, 1981.
- International Union for the Conservation of Nature *World Conservation Strategy*
Morges, Switz.: I.U.C.N., 1980.
- Philip Hoose *Building An Ark*
Covelo, Calif.: Island Press. 1981.
- Anthony Huxley *Green Inheritance*
London: Collins Harvill, 1984.
- Aldo Leopold *A Sand County Almanac*
London: Oxford Univ. Press, 1948.
- Borden Spears *Wilderness Canada*
Toronto: Clarke Irwin, 1970.
- Ian McHarg *Design With Nature*
Garden City, N.Y.: Natural History Press, 1969.
- Roderick Nash *Wilderness and the American Mind*
New Haven: Yale Univ. Press, 1969.
- Bruce Littlejohn and Jon Pearce *Marked by the Wild*
Toronto: McClelland and Stewart, 1973.
- John Theberge *Wolves and Wilderness*
Toronto; Dent, 1975.

Similar comments can be made in the field of medicine. Nearly half of our drug industry is based on natural products derived from a variety of native species. New values of individual species are being discovered regularly — for example the use of the common May Apple in Southern Ontario in cancer research, the use of the armadillo in leprosy research, and many others. Scientists at the Scripps Institute for example, have discovered in the soil of the New Jersey Pine Barrens, a new form of bacteria which has a molecular structure unlike any before known. It promises to be the potential base for not merely a new drug, but a whole new family of antibiotics.

One species does not contain merely one package of genetic material. In fact, species vary in genetic make-up over their geographical range of distribution. Trees at the northern end of their range may be particularly tolerant to cold temperatures and winter freezing, while trees of the same species at the southern end of their range may be tolerant of heat or high temperatures.

The implication for natural areas and endangered species protection is that saving one example of all native species is not enough. It is desirable to save enough examples, and sufficiently large populations to represent the entire range of genetic characteristics which are present in the species.

The great conservation writer Aldo Leopold put the same concept another way in his essay entitled '*Conservation*':

The last word in ignorance is the man who says of an animal or plant: 'What good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.

(Leopold, 1953, 146)

In short, the fact is that man is still (and likely always will be) dependent on natural ecosystems for his survival. We depend on natural processes of plant growth and water cycling for food production. We depend to a great extent on the natural world for medical advances. In the long run, many of these benefits are direct, and measurable in dollars.

When individual natural areas are considered, a series of local utilitarian values may also become apparent. Undisturbed forests in the north can serve as benchmarks to compare growth rates with planted stands, or provide seed trees to improve the genetic base of planting stock. An urban valley might be particularly valuable for recreation, or as an aesthetic buffer between urban uses. A rural natural area often produces a variety of fish and wildlife that supports the outdoor recreation industry; it may also provide its owner with a firewood supply.



ALETA KARSTAD

BALD EAGLE

Once common along Ontario's shorelines, this magnificent bird is now listed under the Endangered Species Act. Protection of nesting sites is essential to restore its population.

The problem is that many of these benefits are not immediate and do not accrue to the landowner like the profit from selling a bushel of corn. The benefits may accrue to society as a whole rather than just to individuals. They may also accrue at some time in the distant future and may simply be taken for granted, left as intangible values because we do take them for granted.

This situation is particularly acute with wetlands. For their hydrological value wetlands are particularly useful within an agricultural landscape, but they do not provide as much immediate economic return to the landowner as does cropland. On a worldwide basis they represent an important priority for conservation though (Figure 3).

The greatest tragedy for mankind will be if we narrow our options irreversibly as we move into the future, not through any conscious decision, but through thousands of small examples of selfishness. Thousands of small decisions elect immediate gain over insurance for the future. Thousands of individual choices are made which seem best for today, but may hurt society as a whole — including YOUR children's children — in the future.

Unless mankind learns to make community decisions to protect the values of the natural world on which he depends, his future is indeed in doubt.

ETHICAL ARGUMENTS:

The difficulty of pursuing utilitarian arguments for the protection of natural areas (though they should be used at every opportunity), is that our land use decisions are inevitably comparative in nature. Even though you can make a good argument for natural ecosystems, strong arguments can be made for other land uses too. The arguments are not wrong in either case. It is a matter of weighting, priorities and judgement.

The core of the problem is that individual decisions which may appear eminently reasonable today add up to reducing society's options in the distant future.

An alternative is to consider the ethical side of conservation. It can certainly be argued, on a Biblical basis or otherwise, that man has no right to end the life of other species here on earth. Though we eliminate many individuals and even populations, surely each species has a right to exist somewhere for its own sake.

Naturalists who have spent time exploring, whether small woodlots or vast wilderness regions, also know implicitly another side of this picture. Many have written eloquently of the 'sense of wonder', the oneness which can be experienced in appreciation of the natural world. Personal immersion in the natural landscape is for many a very positive experience. Wilderness and nature are a deeply embedded part of our culture, reflected widely in literature and art. A fascinating summary of some of the best literature on nature is provided in the book *Speaking for Nature* (Brooks, 1980); a selection of Canadian literature shaped by the wilderness is presented in *Marked by the Wild* (Littlejohn and Pearce, 1973).

FIGURE 3 WETLANDS IN CRISIS

Some of the most threatened of natural heritage areas remaining in Southern Ontario are wetlands. A 1982 Environment Canada study estimates that 70% of pre-settlement wetland areas have been lost to other uses, and the rate of conversion continues unabated.

The primary threat to wetland areas in southern Ontario is agricultural drainage, a process that has created some of Ontario's richest cropland. However, the impact of continued drainage will be felt in the loss of wildlife and fisheries habitat, ecological diversity and hydrological functions such as flood prevention and maintenance of summer flows.

Agricultural drainage is facilitated by Ontario's Drainage Act, which provides public funds to assist in the drainage of wetlands. The Act, as applied, does not include cost-benefit analysis or adequate consideration of the social and environmental impacts of drainage. It is often applied in contravention of provincial water management objectives. Objectors calling for environmental assessment of a proposed drain must pay the considerable costs of that assessment. The powerful Drainage Act, combined with high tax assessment for wetlands, constitutes one of the greatest problems in rural land management in southern Ontario today.

The Federation of Ontario Naturalists has lobbied long and hard for a Provincial policy on how wetlands should be managed. FON impetus produced an MNR document "Guidelines for Wetland Management in Ontario" in 1984. These are guidelines, not policy, to be applied by local municipalities if they so wish.

MNR has received a very strong response to their public review of the guidelines, with over 99% of the submissions calling for a wetlands policy. However, the Ministry of Municipal Affairs and Housing, which controls the land use planning framework, has not yet recognized wetlands as a provincial resource. As well, the guidelines fail to address strongly the crucial issues of agricultural drainage and tax incentives.

Wetland evaluation is proceeding, with over 700 wetlands now (1984) evaluated and classified. This evaluation will identify more clearly the most valuable wetlands. If the Provincial guidelines can be upgraded to policy, and if reasonable controls can be placed on drainage, the best of southern Ontario's wetland heritage may yet be saved.

M. Kirk



.M.D. KIRK

There is a beauty, a fulfillment to be gained by experiencing nature which cannot be explained. The land has a soul, a spirit, and mankind is part of it. Man evolved in a natural world, and he automatically returns to it for 're-creation', as if the strings of our evolution somehow still exert an influence over us.

As one author has written, "A sterile environment can only produce sterile souls." (Kozlovsky, 1974, 87). We need natural environments for the psychological boost they give us.

There is also a great danger that the natural diversity of our world will be lost so gradually and steadily that we will not notice the heritage that is disappearing:

The hardest nut to crack, of all the difficult nuts of environmental deterioration, is the very real human capacity to forget something not now present that was once of considerable importance to our lives, and the obvious inability to miss something we've never experienced. And so from generation to generation the environment becomes less interesting, less diverse, with smaller unexpected content, and our immediate surroundings become depauperate of animals and plants and exuberant human life. What your father can hardly remember, you will not miss. What you now take for granted, or what is now slowly disappearing, your children, not having known, cannot lament.

(Kozlovsky, 1974, 44)

The ultimate question is how we are going to allow our world to be defined for us. Do we wish to preserve 'the tonic of the wilderness' as Thoreau would say? Do we wish our world to be defined only by those monetary values which fit nicely into economic theory?

Ontario is still undergoing rapid development. Constant land use pressure on an area whose size remains constant assures the continual loss of field, forest and marsh which make up the rich tapestry of the landscape. We cannot turn back the clock, but we can rescue some pieces of green from the diminishing legacy.

That goal cannot be achieved without a strong, well-organized conservation constituency, and the support of informed public opinion. Fortunately, a rising generation of naturalists, biologists, and environmentalists are responding to the challenge. And they are gradually succeeding in convincing Ontarians that the economic development of the province need not be impeded by conservation, but simply redirected in a manner that will preserve the best of our natural heritage intact.

In the final analysis, conservation of natural areas is as much a social act as a technical one. As Rowe has written, preserving nature:

... is a powerful symbol of **nonutilitarian** values, an antidote to suicidal species-centred crassness, a sign that humility still lives, a signal that not all in the world is subjugated to economic values, a hope for the future.

(Rowe, 1982, 15)

VANISHING HERITAGE IN ONTARIO



CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

READY



M.D. KIRK

GOING



CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

GONE

CHAPTER 3

GATHERING INFORMATION ON NATURAL AREAS

S. Hiltz

The integrated study of natural areas is the epitome of natural history, of what it means to be a naturalist. Natural ecosystems are fascinating webs of relationships between physical landscapes and the flora and fauna that inhabit them. Studying natural areas is not only the first step toward protection but is also the necessary first step toward appreciation. Regardless of your involvement in protecting natural areas, study of them is the best way to gain new skills as a field naturalist.

This chapter outlines approaches that anyone can use to study and document a natural area. It may be a relatively simplified outline for the biological scientist; but even they may pick up some hints to help in a complete evaluation. For the amateur naturalist, it may seem initially overwhelming in its detail; but with patience and time, all the relevant details can be understood and will likely prove useful.

As you collect information on a natural area, it is useful to keep in mind the ultimate purpose of your work. If you are compiling an overview of natural areas in your municipality to choose the best for protective zoning, a relatively simple pattern of field work may be appropriate. If you are seeking to influence a funding agency to put up dollars for acquisition, more detail on important features might be necessary. If you are faced with an adversarial situation, such as an Ontario Municipal Board hearing, your field surveys would have to be more rigorous, to ensure your conclusions can withstand close scrutiny. Or if you are involved in drawing up management plans for a site, again the kinds of information needed might differ.

For more detail on field methodology, you can refer to the appropriate chapters in *Urban Natural Areas* (Andrews and Cranmer-Byng, 1981). While many field studies are carried out by amateurs, it is important to recognize your limitations and to seek professional help where necessary. If you end up before the OMB, for example, you will find that the credibility of the people doing field work may be an important issue. In any case, even a few wrong identifications of plants or wildlife can quickly undermine your case for protection.

Initially, possible sources of existing information are outlined, since it is only sensible to check these first. Then, steps which might be followed to conduct a general survey of several different sites are discussed. Within this context, more detailed procedures which may typically be used to study individual natural areas are given.

LOCATING YOUR NATURAL AREA:

The very first step, once you have chosen a natural area (or areas) that you wish to study, is to clearly document its location. Only then can you begin to ask about existing information. Three important types of documents are commonly used to help in doing this.

- 1 — Topographic Maps
- 2 — Lot and Concession Maps
- 3 — Air Photographs

Examples of these are provided in Figures 4, 5 and 6.

If you initially sketch the area you are concerned about on the topographic map or air photo, you can then find where it is located on the lot and concession map. This provides you with the basic location information. The air photograph is extremely useful and since it is in fact an actual photograph of the landscape, many people relate to it very easily. Farm lanes, buildings, fence lines and other features show up clearly and enable you to locate yourself easily in most parts of Southern Ontario.

Using such maps and air photographs may be a little difficult at first if you are unfamiliar with them, but with a little assistance (perhaps from the local Conservation Authority or Ministry of Natural Resources office) anyone can master the basic skill of finding precise locations. Further suggestions on the use of maps and air photographs are given in Figure 7.

In addition, when the time comes to communicate documented biological information to others (such as government agencies), it is absolutely necessary to be able to accurately map the information.

Air photographs are fascinating in their own right, as a totally new perspective on the landscape, though you should note that land uses may have changed since the photos were taken. Note carefully the year the photos were taken when ordering them. Order two copies right at the beginning, because you will inevitably mark one up as a working copy. Keep the other clean for reference purposes. As well, you may wish to order overlapping stereo pairs which an experienced photo interpreter can use for more accurate mapping. You might also want to order one to give a landowner; air photographs make great conversation starters.

FIGURE 4

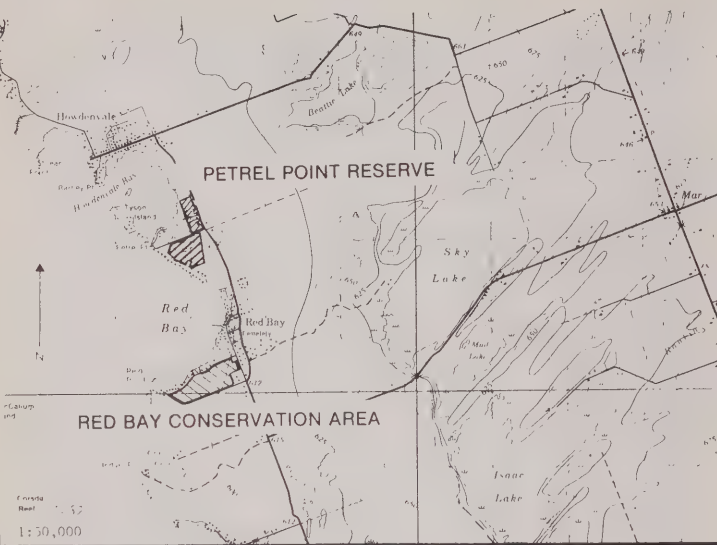


FIGURE 5



FIGURE 6



FIGURE 7

USING MAPS AND AIR PHOTOGRAPHS

The correct use of maps and air photographs requires an understanding of **scale**. For example, the standard black and white air photos of Southern Ontario are produced at a scale of 1:10,000. This means that one inch or centimetre on the actual air photo will equal 10,000 such units on the ground. If you find two spots which are three centimetres apart on the photo, they should be 300 metres (30,000/100) apart on the ground. You can check such distances if you know your **pace**, the length of your own stride when walking, or use a rangefinder.

The standard topographic maps are produced at a scale of 1:50,000, which is a smaller scale than the air photos. They show less detail, and the same area on the ground will be considerably smaller on these maps. Nevertheless, landscape features will be in the same arrangement, so it should be possible to clearly relate the air photo and topo map after a little practice.

A distance of three centimetres on the 1:50,000 topo map will work out to 1500 metres on the ground; a 300 metre distance would actually be 6 millimetres on the map.

Areas are easy to calculate in either case, once you understand the scale. A hectare is 100x100 metres, so it is represented by a square centimetre on a 1:10,000 air photo, or a square 2x2 millimetres on a 1:50,000 topo map.

In order to locate a particular area that you are familiar with on the ground, it is easiest to start with the topo maps. They show all roads and wooded areas, as well as many buildings, and the contours of the landscape in rural areas. With a little practice, and carefully watching rural roads, it is quite easy to locate yourself.

Knowing the county or township in which you are located, a lot and concession map will then enable you to further describe the site of interest by giving its lot and concession numbers, for a given township. Remember when comparing the topo map and lot and concession map that the latter often show out-of-date road patterns, or generalized road patterns (compare Figure 3 and 4). Both topographic maps and airphotos can be ordered directly from:

Map Office,
Whitney Block, Queen's Park,
Toronto, Ontario
M76 1W3

You can obtain an index to topographic maps from the same address and air photos can be ordered with the relevant lot and concession information. Lot and concession maps are usually available at the County office.

LANDOWNER PERMISSION:

Before setting out to visit a natural area that you intend to study, you must obtain permission of the landowner. Throughout this manual, reference will be made to landowners, and the vital role they play as the private stewards of most of our natural landscape. Protective efforts should start with a 'Landowner Contact', as will be outlined in the next chapter, but the road to future co-operation is started by seeking permission right from day one!

If you have doubts about the identity of the landowner, this information can be obtained from public records, as outlined in Figure 8. However, the easiest method, and by far the most personal, is simply to stop at the nearest farmhouse and ask.

In our experience, a large majority of landowners are extremely pleasant about allowing individuals access to their land (if asked), and most are very interested in any results of studies done. Contact with the landowners should not therefore stop once permission has been obtained, but should be maintained regularly, particularly if you can provide the owner with any interesting ecological information. He or she may even be interested in accompanying you on a walk and in being shown some of the features of interest. If the world is to become more sympathetic to an ecological viewpoint, this is a good place to start.

EXISTING INFORMATION:

Before spending time doing any detailed study of a natural area in Southern Ontario, it is well worth the time to check and see if any existing information is on file. Hundreds of woodlots and wetlands have been studied at one time or another, and most of these reports are available on request.

Four major sources of existing information should be checked, as well as some others in special cases. The agencies and the types of information they are likely to have on hand are outlined below.

Ministry of Natural Resources:

I.B.P. Reports — These reports were done during the early 1970's as part of a world wide scientific effort. Part of the International Biological Program (IBP), they consist of point form biophysical descriptions of individual sites. Many of our natural areas now designated as Areas of Natural and Scientific Interest (ANSIs) were originally studied as IBP sites.

FIGURE 8

DETERMINING LAND OWNERSHIP

Determining land ownership seems to be a daunting task for some, and this leads to hesitancy in asking permission of landowners to walk through their woodlot. It is in fact quite easy and straightforward.

As explained above (Figure 7), it is first necessary to find the location of the site of interest, usually on a topo map. Then with a lot and concession map, it is possible to describe the lots and concessions which the natural area covers all or parts of. There are at least five sources of information which you can then use.

The Township Clerk's Office is usually the most helpful. Township assessment records include names of all landowners, and Clerks themselves can be very helpful in sorting out confusing information. Regional assessment offices also have landowner records.

In many cases, the District Office of the Ministry of Natural Resources or the local Conservation Authority will have already recorded and possibly mapped landowners. If you explain carefully what you are doing to the appropriate staff person, they may also be very helpful, and even provide maps to you. If formal records are necessary, the County Registry Office where property titles are on file can furnish property boundaries, but this may be costly and time-consuming.

Perhaps easiest of all, if you are seeking permission to walk through an area, is simply to stop at the nearest farmhouse and ask. If the nearest farm does not own the area, they can usually tell you who does. If at some time in the future you get into detailed negotiations with an owner you may have to turn back to some of the above sources for exact boundary definitions. Or, with the assistance of an air photo, you can go over these with the owner. Careful and proper records should be kept of all landowner information acquired. Ownership can be marked directly on lot and concession maps, or on the air photos.

Comparison of land ownership and vegetation communities as mapped on air photos is very useful, since this can form the basis of setting priorities. Obviously, protection should first be sought for the core, or most significant biological area. This may mean one or several owners. Remaining areas can serve to enhance the core, or serve as buffer. While you are gathering biological information, it is particularly valuable if you can prepare separate, if brief, descriptions of the species on each owner's property. This can be the basis of a later presentation to individual owners.

Sensitive Area Reports — The Ministry of Natural Resources, as part of its land use planning efforts during the early 1970's, also began developing files on what it called Sensitive Areas. Some of these files include biophysical descriptions of natural areas, but their quality varies considerably across the province, as many other land use features were included. Most reports are only a one-page summary, but those in the Southwest Region of the MNR for example, are several pages in length, and quite valuable. The Ministry has now ceased using these reports actively in its planning, but the information is still there.

Life and Earth Science Inventories — As part of its Parks program, the Ministry of Natural Resources has for years conducted Life Science Inventories, as well as separate Earth Science Inventories. These vary tremendously in scope, but are generally at three levels:

- one page summaries or reconnaissance surveys
- several page reports which provide a considerable amount of detail
- large size very detailed reports which provide exhaustive botanical or geological inventories of individual sites.

These reports are extremely valuable, and in the latter two cases may mean that the natural area has already been well described. In fact, the detailed reports, although they are as yet available for only a few sites, represent a valuable storehouse of natural history information for parts of Ontario with which local naturalists should be familiar.

The availability and amount of this material will vary with Ministry offices, but you should feel free to ask for information on any site of interest. As a useful starting point, the Ministry has begun publishing Site District Summary Reports for the Life Science Inventories. These give one paragraph (copies of index cards), and one page (copies of file summaries) descriptions of sites on which there may be more information in the office files. It may be necessary to ask Ministry staff to explain to you, or show you on the maps, the areas covered by Site Districts. You may in fact discover interesting new natural areas close to home based on the field work Ministry staff has done.

Wetland Studies — All the above information is usually in the files of the District or Regional Parks Planner, but the Wildlife Branch is also beginning to conduct widespread biological inventories as one component of its wetland program. A manual for evaluating wetlands has been prepared and Ministry staff are intending to inventory several thousand individual wetlands in Ontario over the next few years. Although this program has just begun, presumably these reports (which run to several pages in length on any one site) will also be available at District and Regional Offices.

A list of M.N.R. District and Regional offices, as well as Conservation Authorities, is provided in Appendix B.

Conservation Authorities, Municipal Planning Offices, and Universities:

Environmentally Sensitive Area Studies — In a large number of Counties or Regions of Southern Ontario, studies of 'Environmentally Sensitive Areas' have now been completed. These consist of short descriptions of individual sites where some field work has been undertaken, together with the methodology used. Usually sites are selected through the use of a particular list of criteria and then municipalities are encouraged to establish some type of policy in their local Official Plan to give protection to these natural areas.

The reports themselves have been undertaken by Conservation Authorities, Municipalities, and Universities, so in any one case it may be necessary to ask several sources before you find a copy. A sample 'E.S.A.' study is provided in Figure 11 at the end of this chapter.

It should be noted that terminology of these studies sometimes varies. The terms 'Environmentally Sensitive Areas', 'Natural Areas', and 'Environmentally Significant Areas' are the most common. Many Official Plans also refer to 'Environmental Protection Areas' which may not be the result of such detailed studies. The local municipal planning office should be able to fill you in on the terms used in your municipality.

Miscellaneous Information — In many cases these agencies may also have done a variety of special studies for various purposes. University botany or geography professors may have done field work, or be willing to help — perhaps even to organize a group of students to do further studies. Conservation Authorities are conducting some of the wetland studies around the province in cooperation with the Ministry of Natural Resources, and have done many studies of their own, as have some municipalities.

Local Naturalists Clubs:

Local Naturalists Clubs may be the source of a variety of information including bird records, special inventories, and some studies of 'Natural Areas'. In particular, local clubs are a valuable source of people who may be able to help, either by sharing their own field notes, assisting you, or undertaking field work themselves.

Many local clubs have newsletters which may have been published for many years, and are a very valuable source of information on the natural history of local regions. The *Ontario Field Biologist*, published until recently by the Toronto Field Naturalists, is one particularly valuable journal. Club newsletters are also an ideal place to publish short reports of biological studies. A list of local naturalists clubs in Ontario and their addresses is provided in **Appendix B**.

Special Sources:

Several other special types of information are available from various sources. For example:

- Bird Nest Records from the Royal Ontario Museum;
- Herptile and mammal records also from the Royal Ontario Museum;
- Breeding Bird Records from the Ontario Breeding Bird Atlas project;
- Geological information from Ontario Geological Survey Reports;
- Soils information from Ontario Soil Surveys;
- Information on some wetlands from the Canadian Wetland Registry of Environment Canada;
- Forest Resource Inventory maps from the Ministry of Natural Resources.

A number of other steps may be of use before you actually begin field work on a site. The most obvious is to talk to knowledgeable people who may have been to the area, might show you around, or suggest what to look for. Local experts in naturalists clubs, government offices, or educational institutions are probably the most helpful. And don't forget the landowner, who may know his own woodlot very well.

Field guides and a compass are obvious necessities and books such as *The Physiography of Southern Ontario* (Putnam and Chapman, 1973) and its accompanying maps, Geological Reports, or Soils Reports may help with general descriptions of the physical features of the area. *A Guide to the Use of Land Information* (Richards, 1979) can also provide helpful suggestions here.

CONDUCTING FIELD WORK:

Before actually conducting field work, you must to choose your areas for study. If you have one particular natural area in mind, field work can proceed, but if you are planning to do a survey of a region, some careful thought as to which sites will be included is necessary.

Usually surveys of a region are delimited by a political boundary — either of a Conservation Authority, or a municipality. Within that region, existing information on file may suggest natural sites for study and local naturalists and topographic maps can often add others. Try to include the complete range of different site types (upland and lowland forests, wetlands, river valleys, etc.) as well as unusual or unique features such as bogs and habitats of rare plants or wildlife.

There are a number of useful steps to follow in actually conducting field work, assuming you have chosen a site or sites, and have landowner permission. The first is a quick walk through the area, particularly if it is fairly small. The second is to check the air photograph, which can often be done on your first walk.

The first thing to document is the pattern of plant communities, the areas within your sites which are characterized by somewhat different plant species. The easiest way to identify these is simply by visual appearance. Some areas may be wet and open, with scrub vegetation; others might be mature deciduous forest; still others might be coniferous or mixed forest. The easiest way to begin your description of a natural area is to describe the plant communities which make it up.

In very small woodlots in Southern Ontario, no obvious difference in plant communities may be observable. The entire woodlot may then be treated as one plant community, although the discussion here will assume that a more diverse vegetation pattern is present.

You should also always keep your eyes open for three other features. First, you should be observing the general physical features, the topography and landscape of the site. Secondly, you should always be watching for rare species of flora if you can identify them. If in doubt, and if the plants are present in sufficient numbers, a specimen should be collected for submission to a qualified botanist for identification. Thirdly, all species of wildlife seen should be recorded. Few people attempt any systematic survey of the fauna of these areas, so it is important to keep observing them as you go, to maximize the list you build up.

Having familiarized yourself with the area, you are ready to begin serious work. Begin by marking out on the air photograph any obvious different patterns you can see, even though you may not be able to relate them totally to your first assessment of vegetation communities at this stage. You may need the help of an experienced photo interpreter with this.

As an example, consider Figure 9 which illustrates part of the proposed Misery Bay Provincial Nature Reserve on Manitoulin Island. Once you have marked out these areas, the simple task is to spend time in each area describing it. If you do not have an air photograph, the process is still basically the same. You must spend sufficient time in each part of the natural area to describe its main features.

The major work is likely to involve the identification of the most common (dominant) plant species. Ideally, it would be desirable to list all species, but few botanists can do that easily. By carefully observing the area though, it should be possible to decide what the common species are, and identify them. A plant community is usually named after the dominant species — for example a Maple-Beech woodlot, or a Jack Pine-Juniper limestone plain. For those common species which you cannot identify, it may be useful to collect a specimen (carrying it in a large plastic bag to preserve its freshness until you can press it). However, unless you are a qualified professional, you should never collect a species that is only present in small numbers.

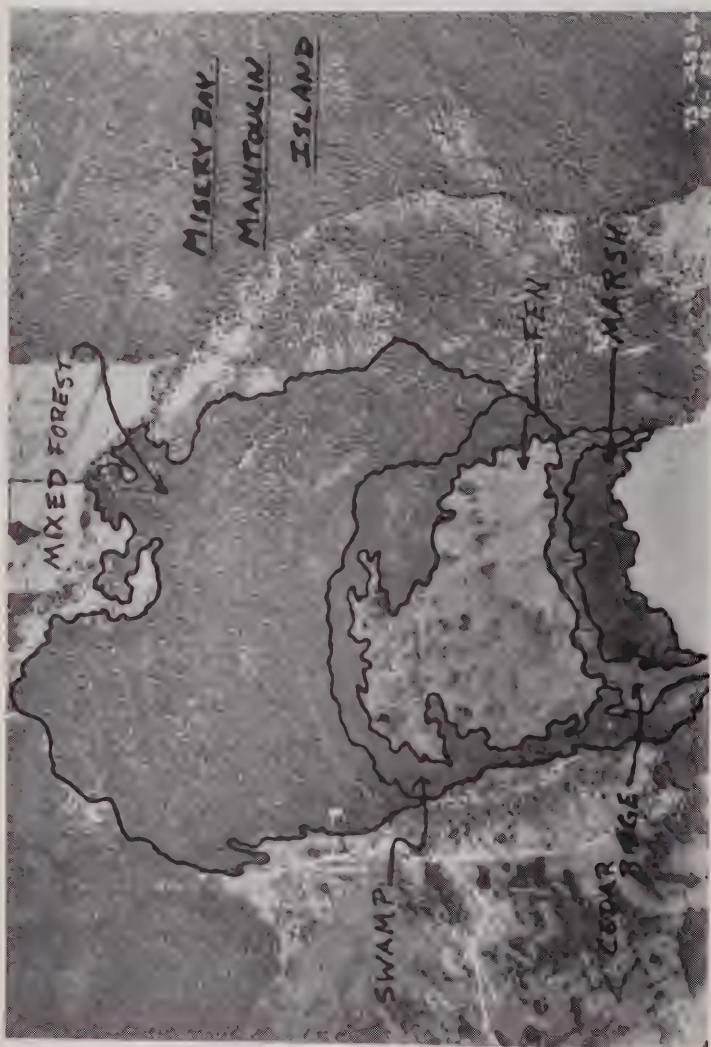
The majority of field studies of this nature are conducted by wandering around within the identified plant communities, making sure that you cover the area reasonably thoroughly. Identify the plant species in each community and list them, the most common first. To do a reasonable job of identifying most of the plant species, it may be necessary to visit a site about four times in a season — once in early spring, then in early, mid and late summer or early fall. This is particularly true if you are not a good enough botanist to identify species without their flowers, as is the case with most of us!

For some purposes, you may wish to collect some form of quantitative data — that is, to estimate the actual numbers of plants of different species which are present in a community. Many different techniques are available for doing this, and those interested should consult a good ecology textbook, or refer to other available guides (eg. Maycock, 1981). Basically, in quantitative sampling you decide on some form of sample, such as squares or quadrats several metres on a side for checking tree cover, and then you actually count the numbers of each species within these sample areas. For shrubs or ground-cover, the actual sample sites would be smaller, down to one square metre. Measures of percent cover are also common, especially with groundcover, and tree size is often measured by recording the dbh (diameter at breast height). Such information can enable a variety of statistics to be developed by the serious ecologist, but is seldom necessary for general surveys.

In either case, you end up with a list of plants describing each vegetation community (including dominant species, plus separate notes on canopy, understory, and ground cover). To consider the example of Misery Bay again, the five areas highlighted on the air photo (Figure 9) actually turn out to be:

- 1 — Open marsh
- 2 — Wet fen
- 3 — Cedar swamp forest
- 4 — Mixed forest
- 5 — Cedar ridge

FIGURE 9



During the field work done to describe plant communities, which is usually the most time-consuming element of a natural area inventory, other features should also be noted. When the report is written, you should include descriptions of all physical features of the landscape, such as topography, rock outcrops, soil types and the drainage patterns. This could include describing any bodies of water present — their depth, size, and water quality.

If your background information or field observations suggest that special earth science features may be present, you should consult with an appropriate expert from a university or government agency. One such knowledgeable agency is the Earth Science Program of the Ministry of Natural Resources' Parks Branch at Queen's Park. Often with the help of geological and physiographic maps, you can identify the feature in the field. It is usually more difficult for the layman to establish which of these sites, such as quarries, may include exposures of rock types or fossils which give them special scientific significance.

As noted above, although it is rare that any systematic study of the wildlife is undertaken, any species seen should be included in a report. If time and expertise are available, attempts to find herptiles (reptiles and amphibians) in the early spring, to record breeding birds during June, or to inventory mammals, are valuable additions which can immeasurably improve natural area descriptions. More detailed discussions of how to conduct such specialized field studies can be found in two important books dealing with natural areas in Ontario (Andrews and Cranmer-Byng, 1981; Barrett and Riley, 1980).

Finally, it should be noted that any available information on administrative or cultural aspects of a site should be recorded. This could include listing the owners of a site, finding out any applicable Official Plan policies, reference to any published information, and any use man has made of the site, such as trails, past lumbering, hunting or other recreational use, and so on.

Such field studies can be documented in a variety of ways. Figure 10 is a typical example of a natural areas survey carried out by amateur naturalists. In this case, maps of vegetation communities and other field notes are not included in the summary report, but kept in background files.

If your inventory were to be used in a more formal setting, such as an OMB hearing, or for more detailed management, you could add sketch maps showing special features such as trails or streams, vegetation communities, or geological features. Complete species lists could also be included. Photographs add immensely to the impact of a report and if it is to be presented to an agency, a good quality cover is worthwhile.

Other inventory forms vary in their format. The Ministry of Natural Resources Life Science Inventory Sheets, for example, provide a very structured series of categories for information on physical and biological features. Where they have been completed, these forms provide a more consistent information base for evaluation of provincially-significant areas.



COMMON LOON

This symbol of The Canadian Wild is decreasing on more southerly Ontario lakes due to loss of nesting sites and decline in the fishery.

FIGURE 10 (continued)

MIDDLESEX COUNTY NATURAL AREAS SURVEY

McIlwraith Field Naturalists Club

c/o D. Wake, 1354 Langmuir Ave., London, Ont., N5W 2G6

NAME OF AREA - (Create one if necessary)	EXACT LOCATION - Township - Concessions - Lots -
OWNERSHIP - (Name and Address)	Topo Map Name - Map # - Lat.- ° 'N.; Long.- ° 'W. UTM Ref.-
ACCESS - Public land - all welcome - Private land - public welcome - - naturalists welcome - - no-one welcome -	Air Photo #'s <u>Year</u> <u>Roll</u> <u>Flight Line</u> <u>#'s</u>
SIZE -	
DATES OF FIELD WORK -	
NUMBER OF VISITS AND TIME SPENT -	
PERSONS INVOLVED -	
OTHER INFORMATION SOURCES - People - Publications -	
PRESENT HUMAN IMPACT: Grazing - Lumbering - Hunting - Snowmobiling - Other Recreation - Other -	
SKETCH MAP OF LOCATION AND BIOLOGICAL COMMUNITIES -	

FIGURE 10 (continued)

2

PHYSICAL DESCRIPTION:		
I. LANDSCAPE		
A. Topography -		
B. Landforms -		
C. Soil Type -		
II. HYDROLOGY		
A. Drainage Features and Pattern -		
B. Water Quality		
BIOLOGICAL DESCRIPTION -- SPECIES COMPOSITION:		
Community Types and Description	Flora Description	Fauna Description

FIGURE 10

GUIDELINES: Do as much as you can, but don't try to guess; follow example.

PAGE ONE-

- **OWNERSHIP** - You can often find this when stopping at a farm to ask permission for access yourself.
- **SIZE** - Estimate from topo map or on the ground by pacing boundaries.
- **LOCATION** - Learn to use the topo map to get latitude & longitude and the UTM Grid Ref. Air photos are housed at local MNR offices.
- **DATES, etc.** - Important in order to judge completeness of information; eventually visits in all seasons would be desirable.
- **SKETCH MAP** - Fill the space! Include all roads, railways, buildings, lot lines (if known), surrounding land use, drainage and topographic features, north arrow, some indication of scale. Indicate especially the biological communities of the area, and pay particular attention to portraying the overall shape of the site accurately-- the greatest benefit of consulting air photos is for help in constructing this map; it can be a tracing of the air photo.

PAGE TWO -- PHYSICAL DESCRIPTION-

- **Topography** - Is it flat, sharply dissected (~~~~~), gently rolling (~~~~~), or steeply rolling (~~~~~)?
- **Land forms** - Note any types you see -- river valleys, stream valleys or gullies (actively eroding), glacial moraines, eskers, drumlins, etc. Note any outcrop of solid bedrock (as vs. gravel and boulders).
- **Soil Type** - Is it coarse (sand or gravel), fine (silt or fine sand), or loam (mixture)? Is it wet, mesic, or dry? Describe the colour of the first few inches; note any areas of active erosion.
- **Drainage** - Trace on map and note streams, rivers, springs, lakes, swamps, marshes or ponds -- include size of features (width, depth).
- **Water Quality** - Describe the clarity, seasonality, any obvious pollution.

BIOLOGICAL DESCRIPTION - This is the most critical task of all, and although it will take time, it is essential if results are to be useful. These guidelines will help us compare reports done by different people, and provide a framework for you to further your own knowledge of natural history.

- Describe the various vegetation communities from the list below; map them, and then list all flora and fauna within each community in the columns provided. Try to list the species in order of abundance -- this may be done by using a simple traverse method -- follow a meandering walk through the area and note all plants within say 6' of your path; then you can count the numbers of various species seen, or estimate percentage composition. This is essential for at least the trees; and you should also note the diameter at breast height (d.b.h.) of all trees. Simply listing shrubs and ground cover will do satisfactory at first, but try to describe the abundance of these too. Add list of fauna. Usually this will all be done in your field notebook; then summarized on this form.

Community Types:

- | | | | |
|---------------------|-----------------|-----------------------|-----------------------|
| 1- Pasture | 4- Scrub | 7a- Swamp (deciduous) | 8a- Dry Forest (Dec.) |
| 2- Cultivated Field | 5- Marsh | b- Swamp (coniferous) | b- Dry Forest (Con.) |
| 3- Meadow | 6a- Bog (treed) | c- Swamp (coniferous) | c- Dry Forest (Mix) |
| | b- Bog (open) | | |

EVALUATION OF PRIORITIES:

There are two major aspects to evaluating natural areas once the necessary biological information has been accumulated. The first of these is a comparison of sites with others in a region, usually by using a defined set of criteria. This provides a vital regional perspective. The second is more biological in nature and focuses on the presence of rare species of flora and fauna. Both aspects are useful and complementary.

The criteria which have usually been used to compare natural areas are simple and relatively straightforward to apply. Designed by a group in the Region of Waterloo, they have since been widely used across the province.

1. The area represents a distinctive and unusual landform within the municipality, Ontario, or Canada.
2. The ecological function of the area is vital to the healthy maintenance of a natural system beyond its boundaries, such as serving as a water storage or recharge area, important wildlife migratory stopover or concentration point, or a linkage of suitable habitat between natural biological communities.
3. The plant and/or animal communities of the area are identified as unusual or of high quality locally within the municipality, Ontario or Canada.
4. The area is an unusual habitat with limited representation in the municipality, Ontario, or Canada, or a small remnant of particular habitats which have virtually disappeared within the municipality.
5. The area has an unusually high diversity of biological communities and associated plants and animals due to a variety of geomorphological features, soils, water, sunlight and associated vegetation and microclimatic effects.
6. The area provides habitats for rare or endangered indigenous species that are endangered regionally, provincially, or nationally.
7. The area is large, potentially affording a habitat for species that require extensive blocks of suitable habitat.
8. The location of the area, combined with its natural features, makes it particularly suitable for scientific research and conservation education purposes.
9. The combination of landforms and habitats is identified as having high aesthetic value in the context of the surrounding landscape and any alteration would significantly lower its amenity value.

(Eagles, 1984, 46)

The actual application of these criteria has normally been done by a group of experts through discussion. Familiarity with the region and its flora and fauna is helpful, as is familiarity with the sites themselves. Figure 11 shows how the criteria have been applied to one Environmentally Sensitive Area in Halton Region.

Other more complicated rating and classification schemes have been proposed, but rarely used on a local scale. An important aspect is the connection between the criteria used for evaluation, and the values of natural heritage areas to man, as discussed in Chapter 2. The criteria also cover both the **significance** and the **sensitivity** of the sites.

It is often useful to distinguish both the positive significance (such as high quality vegetation associations) and the negative constraints of a site (such as organic soil which makes building difficult).

Although it is included among the criteria listed above, the presence of rare species represents a second major aspect of evaluation. Biological information must be quite complete for this criteria to be thoroughly applied, but a list of the rare plants and animals present on a site is one of the most valuable items in an evaluation.

There are several sources of information to help evaluate rarity, especially for plants. Several years ago the National Museum published a list of the rare plants in Ontario (Argus and White, 1977) and now the Museum is slowly compiling a revised list in the form of an *Atlas of the Rare Vascular Plants of Ontario*. Unfortunately, published lists of rare fauna (birds, mammals, or herptiles) are not easily available, but experts at nearby universities can be consulted for assistance.

Our knowledge of the distribution of species of flora and fauna is constantly changing; keeping up with such knowledge is one of the fascinations of amateur natural history. Subscribing to journals such as *The Ontario Field Biologist* and newsletters such as *The Plant Press*, published by the Field Botanists of Ontario, is probably the best way to start.

Amateur field studies of natural areas can be one of the most absorbing of avocations. Biological surveys are of great interest in their own right, and the information gathered steadily increases appreciation of Ontario's natural heritage. However, it is also necessary to take the next major step and use this information to help protect this heritage for future generations.

FIGURE 11



HALTON REGION

ENVIRONMENTALLY SENSITIVE AREA STUDY

E.E.A.C.

E.S.A. NO 3



GRINDSTONE CREEK VALLEY

Photo Courtesy of Niagara Escarpment Commission

General Description

Grindstone Creek Valley is the major basin for the extreme southwest part of Halton Region draining, in part, the highly erodable red clay soils so characteristic of the area. While several small intermittent tributaries arise at the base of the Escarpment and flow through at least four E.S.A.'s, the major headwaters of Grindstone Creek arise in Hamilton-Wentworth Region. The creek flows south from Waterdown, deeply dissecting the Escarpment at the Regional boundary, and forming a narrow sheltered valley which broadens into a well developed flood plain from just north of Highway #403 to Hamilton Harbour.

The valley sides are generally heavily wooded throughout, while the flood plain in the southern part has various land uses ranging from housing to recently developed natural vegetational communities. The valley is an excellent area for nesting and migrating birds.

E.S.A. NO 3

FIGURE 11 (continued)



HALTON REGION

ENVIRONMENTAL

E.E.A.C.

E.S.A. NO 3

Criteria Fulfilled

Criterion One:

The very northern portion is an Escarpment feature with excellent scenic exposures of Manitoulin, Whirlpool and Queenston formations. This is one of the deepest river valleys in the Queenston shale. Also well exposed is the Halton Till overburden (Cowell, 1976).

Criterion Two:

The lower Grindstone Creek is probably the best migrating bird stopover area in the Region, according to the number of species sighted. Over the years, 268 species have been recorded as migrants (Hamilton Naturalists' Club, 1975). The valley is a continuous wooded linkage from Hamilton Harbour to the Escarpment. The upper portion offers a narrow sheltered valley harbouring a large winter resident bird population (G. North, pers. comm., 1976). Grindstone Creek also serves as a zone of major groundwater discharge, especially along the Escarpment face. (Ecologistics 1977).

Criterion Five:

The valley contains a number of distinct biological communities, ranging from Escarpment habitats to flood plain and aquatic habitats. Over 100 species of nesting birds have been recorded including rather shy species such as Barred Owl (*Strix varia*) (Hamilton Naturalists' Club, 1975). This large number of breeding species indicates a wide diversity of habitats occurring within a relatively small area. The presence of shy wildlife such as the Long-tailed Weasel (*Mustela frenata*) demonstrates unusually high quality conditions in an urbanizing part of the Region.

Criterion Six:

The provincially rare species American Columbo (*Swertia caroliniensis*) is found here (A. Wormington, Pers. comm. 1976), as well as the nationally and provincially rare Twin Leaf (*Jeffersonia diphylla*) (B. McLaren, 1976, Pers. Comm.).

E.S.A. NO 3

FIGURE 11 (continued)



HALTON REGION

E.E.A.C.

ENVIRONMENTALLY SENSITIVE AREA STUDY

E.S.A. NO 3

Regionally rare plants include Wild Leek (Alium tricoccum) (B. McLaren, Pers. comm. 1976), Buffalo Berry (Shepherdia canadensis), Chinquapin Oak (Quercus muehlenbergii), Spice Bush (Lindera benzoin), Wolffia punctata, and W. columbiana. Uncommon nesting bird species include:

Yellow-billed Cuckoo (Caccyzas americanus)
Barred Owl (Strix varia)
Cerulean Warbler (Dendroica cerulea)
Pine Warbler (Dendroica pinus)
American Kestrel (Falco sparverius)
Pied-billed Grebe (Podilymbus podiceps)
Least Bittern (Ixobrychus exilis)
American Bittern (Botaurus lentiginosus)
Yellow-breasted Chat (Icteria virens)
Henslow's Sparrow (Ammodramus henslowii)

(Hamilton Naturalists' Club, 1975)

Northern Ribbon Snake (Thamnophis sauritus septentrionalis) and Eastern Fox Snake (Elaphe vulpina gloydi) have been reported recently from the lower Grindstone (W.J. Lamoureux, Pers. comm. 1977). These snakes are rather uncommon in the Region as are the mammals Star-nosed Mole (Condyura cristata cristata), and Long-tailed Weasel (Mustela frenata noveboracensis) which have also been sighted recently (W.J. Lamoureux, Pers. comm. 1977).

Criterion Eight:

The very large number of bird species using Grindstone Creek Valley makes this area excellent for bird-watching and migration studies. The habitat diversity and biological community development renders the lower Grindstone very suitable for field studies, and it is often used for this purpose by the Royal Botanical Gardens.

General Comments

Past and continuing development in the drainage area has resulted in erosion and resultant turbidity and siltation of the Creek, especially where it enters the Hamilton Harbour. Suitability for a variety of fish species is therefore diminished. One source of significant amounts of suspended solids may be traced

E.S.A. NO 3

FIGURE 11 (continued)



HALTON REGION

E.E.A.C.

E.S.A. NO 3

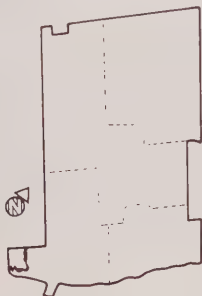
to the activities of a large cement manufacturing company in the area.

There is considerable sewage pollution from the Waterdown sewage treatment plant and storm water effluent causes some erosion in the banks of the Grindstone itself. (Attack, McKibbin and West, 1976).

Nearly all of the Grindstone Creek Valley lands have been designated as "Public Open Space" by the Parkway Belt and the remainder of the E.S.A. is within the "General Complementary Use" zone. The valley and some of the intermittent tributary valleys have been designated as Hazard Land by the Ontario Land Inventory.

The Royal Botanical Gardens owns most of this E.S.A. west of Unsworth Avenue to Hamilton Harbour (Hendrie Valley). Approximately 65% of this E.S.A. is presently in public ownership. The upper portion of the E.S.A. from Waterdown south for about 2.4 kilometres (1.5 miles) has been proposed by N.E.C. as a Nature Reserve because of the geological exposures.

Strict turbidity and sewage effluent standards should be set and enforced for the creek by the appropriate agency, and erosion control standards should be strictly enforced. Urbanizing activities in the ravine lands of the whole drainage basin (including culverting and filling) and adjacent table lands should be discouraged to minimize erosion and siltation. (Attack, McKibbin, and West, 1976).



E.S.A. NO 3

STRATEGIES FOR PROTECTION

S. Hilts and M. Kirk

A wide variety of strategies are available for the protection of significant natural areas. In this chapter, some of these specific techniques, stressing cooperative action with private landowners, are outlined.

The relationship between private owners and protection of natural areas is a complex one. One major factor in determining the use of land, and therefore the conservation of natural areas, is the attitude of the owner. His background, familiarity with planning processes and economic circumstances may all influence that attitude. In many cases, private owners are already good stewards of their land and may hold a strong pride in their bit of the earth. Natural heritage protection should build on this pride, not conflict with it.

On the other hand, the use of private land is influenced by an array of government policies and regulations. The land use planning process, outlined in Chapter 7, is the most direct regulatory instrument. But many other policies affect the conservation of land as well. Property tax policies, for example, discourage owners who want to protect their lands. Subsidies for drainage and other conflicting activities encourage the destruction of natural areas. But provincial involvement in reforestation or woodlot management, as well as in land purchase, can do much to assist protection efforts.

For the citizen who wishes to save the best of the natural areas in his region the conflicting influences of landowner attitudes and government regulations pose a difficult dilemma. At first glance, the designation of natural areas within the municipal official plan, with strict controls to ensure their protection, may seem an ideal solution. However, if this is done without landowner support, it may provoke a storm of protest and the loss of any potential landowner cooperation. In some cases in Ontario, areas considered for designation were immediately destroyed by landowners determined to avoid such regulation. Such abortive attempts leave a legacy of mistrust and bitterness among other landowners and conservationists.

However, in some areas, relying on voluntary cooperation of landowners to protect natural areas will clearly be ineffective, for the economic forces causing changes in land use are too great to be stopped. This is particularly so on the urban fringe, where much of the land is already owned by developers and speculators. In such areas, only strong land use regulation or acquisition stands a chance of re-directing development to save natural areas.

For any individual natural area, then, choosing a strategy for its preservation is seldom easy. In many rural areas, the cooperative approach of natural heritage stewardship landowner contact programs may be more successful than regulatory approaches. Today's farmers must view their land as a vital economic asset and even sympathetic owners may be so financially hard-pressed that protection of natural areas is secondary to their own survival. However, there is an increasing awareness among the farm community of the necessity to manage for sustainability, through soil and water conservation. Natural heritage protection can often be incorporated into that ethic.

One thing is certain — you cannot build the trust necessary for a successful cooperative program if at the same time you are seen as an adversary in a controversial land use regulation process. In some cases, once the attitudes of the landowners become clear, the planning designation of properties for conservation may pose few problems. But in most areas, you must choose whether to work cooperatively and often slowly, with the owners, or to use the tools of the planning process to attempt to force an acceptable resolution, or to seek direct public acquisition of the area in question.

In any case, an essential step in considering protective strategies is contact with landowners. Since many of the natural heritage sites in southern Ontario will continue to be privately owned, the respect shown for landowners will have a major effect on the acceptance of conservation efforts by the public. Landowner contact is the bridge between identifying the ecological significance of a site and the choice of an appropriate strategy to ensure its protection (Figure 13).

The innovative thrust of natural heritage protection today, world-wide, is to depend less on direct acquisition of land and more on cooperative arrangements giving added weight to private stewardship. Phil Hoose's book for the U.S. Nature Conservancy, *Building An Ark* (1981) has spearheaded this direction in North America, and a number of conferences have been held to discuss new approaches (Brenneman and Bates, 1984; Land Trust Exchange, 1982). In Ontario, the Ministry of Natural Resources has been examining this theme closely, and has put out two reports on *Land Acquisition Alternatives* (Lands Management Branch, 1984 and 1985). The federal government has also recently conducted a study of land protection alternatives (Haigis and Young, 1983).



ONTARIO HERITAGE FOUNDATION

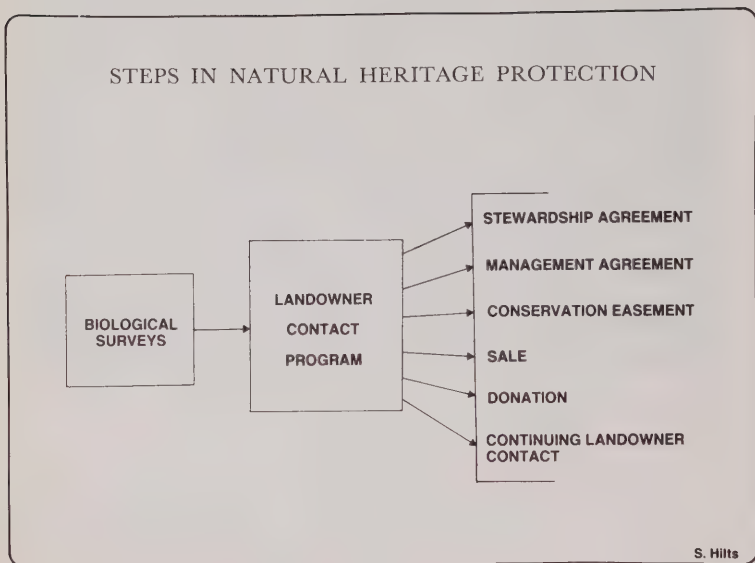
FIGURE 12

CASE HISTORY — FLEETWOOD CREEK

Fleetwood Creek headwaters, in the Oak Ridges moraine west of Peterborough, contain a complex of diverse glacial landforms and a picturesque mixture of forest, old field and wildlife habitats. The Ministry of Natural Resources classified the valley as an Area of Natural and Scientific Interest (ANSI). After the landowner's death in 1981, his successors sought to sell the 320 hectare property. It was acquired by the Ontario Heritage Foundation after the Nature Conservancy of Canada had recruited a sponsor who would finance the purchase. Custody, inventory and management has been assigned to the Ministry of Natural Resources.

Fleetwood Creek is a prime example of government and non-government agencies working as a team toward a common goal. Because the significance of the property had already been documented, that team was able to move quickly to solicit funds and protect the property when it became available.

FIGURE 13



Today, non-profit citizen's groups are taking a lead role in this field, much as local historical societies spearhead the protection of historic heritage. A philosophy of encouraging private stewardship through the use of innovative techniques rather than looking to government acquisition in all cases, is becoming the rule. While acquisition will always remain one important alternative, many other techniques are now being tried, in a variety of combinations, and with the cooperation of various agencies. We stand on the threshold of a time when many more diverse approaches will be used to protect natural areas. This chapter summarizes the most useful of these non-regulatory approaches.

LANDOWNER CONTACT:

The starting point of any protection effort should be contact with the landowners of a site. As stressed previously, even before undertaking biological studies, landowners should be asked for permission. This establishes the right relationship at the beginning. The process of encouraging protection under continued private ownership, or by some other alternative, can build on this original contact. In some cases, protection may depend on continuing contact with owners over long periods of time.

In a formal way natural heritage stewardship through landowner contact, has been adopted as a major protection strategy of the Natural Heritage League. The idea comes from the U.S. and British Nature Conservancies, where it has been used for years with great success. After natural areas have been identified, a visit is made to each landowner to inform him about the particular features and significance of his natural area. Staff or volunteers doing this contacting are trained to get across the basic biological information while listening to the landowner's viewpoints, plans and ideas. Sincerely listening to the landowners is vital.

The purpose of the initial visit is simply to ascertain the landowner's views, provide him with information and encourage continued good private stewardship. Future contacts will depend on the results of the first, and may proceed in a variety of directions.

During the summers of 1984 and 1985, the Natural Heritage League sponsored a trial Landowner Contact Program, since renamed the Natural Heritage Stewardship Program in Ontario. The project contacted several hundred owners of 'Areas of Natural and Scientific Interest', mainly in Southwestern Ontario. This first effort has been a resounding success; detailed results can be found in a number of published reports (Hilts and Wagner-McLellan, 1984; Hilts and Moull, 1985a). It is anticipated that this program will be continuing at a provincial level.

KEY INGREDIENTS:

The key ingredients in a landowner stewardship program, besides a list of sites and their owners, are:

— careful choice of contact persons — they must be honest, sensitive, forthright, bold, knowledgeable, persistent, patient, self-motivated, courageous, courteous and good listeners.

— thorough familiarity with the range of alternatives that it is possible to bring to any one situation and a flexible attitude toward appropriate uses of natural heritage sites.

— a willingness to listen honestly to landowners' views, and then to adapt your own attitude to reach an appropriate protective strategy for any one site.

It is important to stress that Natural Heritage Stewardship in this sense is NOT merely another technique that can be used for protecting natural areas. It is in fact the framework through which suitable strategies can be chosen and evaluated to suit the individual situation. It is the bridge between the scientific identification of significant natural heritage sites, and specific efforts to protect them.

Conservationists working for the protection of natural heritage have not been in the habit of speaking to landowners often enough. It is a habit they should develop. Perhaps the most positive finding of the trial program to date has been simply the positive attitudes of most landowners. Virtually all landowners contacted gave representatives of the Natural Heritage League a pleasant and courteous reception. Generally, landowners feel proud of their own land and want to use it carefully. For many, protecting its natural heritage is already an important part of that stewardship. Many others may feel similar pride in their natural heritage once they are made aware of its significance.

When landowners are contacted, an almost infinite variety of situations will arise — every owner is unique. However, it is useful to consider four broad groups in terms of their response. A small number of owners may be positively enthusiastic. Such owners are to be congratulated and encouraged. They may be willing to enter into some sort of protective agreement.

Another group of owners will be interested and sympathetic, but not wish to do anything further at this time. In this case, continuing contact is the route to take. A third group may not be so receptive, having other priorities for their land. Continuing contact is important here too, as is a close examination of alternatives which might suit the cases of individual landowners. Finally, some landowners, for whatever personal reasons, will react negatively. Unfortunately, this appears to be inevitable to some extent, and the only solution is to be patient and perhaps try again. It is also important to continue to try and devise new incentives to encourage private owner stewardship. This is an ongoing part of the Heritage League's work.

CHOICE OF STRATEGY:

The focus of this chapter is on the choices open to those landowners who may be willing to enter into some sort of protective agreement. A range of these are available, from simply a handshake or verbal agreement through a non-legal, non-binding, but written stewardship agreement, to a formal, legal conservation easement. Beyond this are a variety of legal forms of donation or sale of property, with various tax advantages for owners. These are all discussed below.

What emerges from a carefully run Natural Heritage Stewardship Program is a series of choices for protection efforts, as illustrated conceptually in Figure 14. From the point of view of the landowner, these choices are presented in clear understandable terms. Landowner contact also may directly benefit an owner by increasing his knowledge of the features of his own property. From the point of view of the agency carrying out the contact, priorities for action are identified. Scarce resources for acquisition can be spent where they will do the most good; scarce staff resources can be allocated to work with owners planning land use changes, or desiring some formal protection agreement.

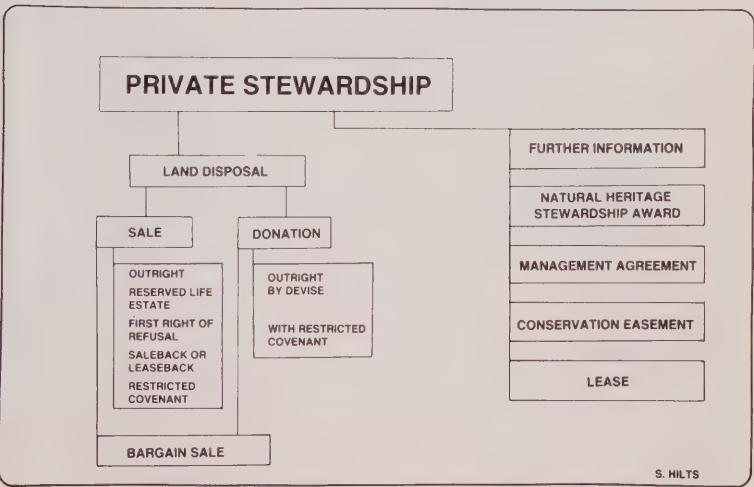
Even when development of some sort is planned by an owner, it can be carried out in a way that minimizes the amount of damage to natural areas through careful site planning. Perhaps this idea is best expressed in the classic book by Ian McHarg entitled *Design With Nature*. If we design our developments with nature instead of against it, we often end up with a better development AND less environmental damage, as discussed later in this book.

One frequent constraint is the limited amount of biological information available. In particular, there is often little information mapped, to enable you to ascertain the characteristics of the vegetation and wildlife on an individual owner's property. Often, individual properties are primarily significant as part of a much larger natural area and the biological description is of a general nature, applying only to the entire site. To effectively deal with individual owners, more detailed field surveys may be necessary.

PROTECTION CONCERNS:

It should be stressed that working with landowners to protect natural areas does not mean freezing these areas so that they are not used at all. If it did, many owners would not likely be sympathetic. As a following chapter will discuss, a variety of uses, from simple appreciation of nature through recreational activities such as photography or hunting, to forestry uses, may be appropriate in any one natural area. In many cases, heritage protection will mean no change at all in the activities the landowner has normally carried on. Compromise will often be necessary, and in some cases land uses with higher economic returns will win out, but in the long run working with landowners will protect many more sites than could ever be publicly acquired.

FIGURE 14



Contact with owners may be a continuing process. While some owners may be interested in coming to a protective agreement quite quickly, others may never do so, even though they may remain sympathetic. Continuing contact may mean an annual visit, an annual newsletter, or less frequent contact. The Bruce Trail Association for example, which has worked directly with landowners for over 25 years, visits all co-operating owners at least once a year, and gives away an annual calendar.

For this reason, record-keeping is also essential, especially if persons doing the contacting change over the years. If someone visits a landowner and receives a request for a particular bit of information, the necessary follow-up should be done rigorously to ensure that the owner gets what he requested. In fact, owners may call as long as a year or more after the initial contact with questions. Careful, coherent records of visits and landowner names and requests are therefore critical if such a program is not to collapse in confusion.

Natural Heritage Stewardship is often a protective technique in itself. Some landowners, on the basis of becoming aware of the natural heritage value of part of their property, will exert better stewardship and this can be encouraged.

Stewardship also seems to be an approach which landowners themselves appreciate. A recent study of landowners' attitudes to various land use programs showed that this type of approach was widely preferred by owners of small wetlands in Southwestern Ontario (Kreutzwiser and Pietraszko, 1986). The pilot study conducted by the Natural Heritage League also left the impression that landowners appreciate someone taking the time and trouble to come and talk to them in their own kitchen, in their own terms, about natural heritage and its values.

More than this, because Natural Heritage Stewardship is a philosophy that puts private landowners first and considers protection in the context of their viewpoint, it encourages the good private stewardship that most of them willingly provide.

OPTIONS WITH PRIVATE OWNERSHIP:

STEWARDSHIP AGREEMENTS:

Many landowners are already doing exactly what this book is meant to encourage — protecting natural features on their property, and practicing good private stewardship. In fact, many rural landowners have bought their property in part because of its natural heritage. They may use it for a recreational retreat, or their home, and they need nothing but encouragement to continue protecting the natural features.

One simple step which can be taken is the provision of further information to landowners. Many rural landowners, while interested in their natural heritage, do not know a great deal about it — specifically, they are not aware of the species which make up a wetland, the kinds of birds which they hear calling in the spring, or the trees which make up their woodlot. Their appreciation of this heritage can be enhanced if a knowledgeable person takes the time either to provide information such as copies or summaries of reports, or better still, to walk with them through the area, to point out things of interest.

Naturalists clubs might invite interested owners to join, give away gifts of bird or flower field guides, or even conduct small biological field surveys to provide an owner with further encouragement. The current NHL Natural Heritage Stewardship Program tries to provide every owner with a brief description of the natural area of which he owns a part, and a small pamphlet on natural heritage protection through private stewardship.

Some owners will be interested in different types of information, such as the availability of management assistance from the Ministry of Natural Resources or the Conservation Authority. This also can be provided, through co-operation with these agencies.

It is appropriate to recognize good private stewardship in any way possible. A variety of awards are given now for good stewardship of farmland, for protection of historic buildings, and for other forms of public service. Similar awards can be given for natural heritage stewardship. The Natural Heritage League during the past year created a *Natural Heritage Stewardship Award*, which will be available to owners of designated natural heritage sites if the owners agree to a few basic principles:

- to keep the natural area of their property in a natural condition,
- to maintain a watchful eye over the condition of the natural area,
- to notify the Natural Heritage League 60 days in advance of any pending change.

While these formal awards may be reserved primarily for sites designated to be of provincial significance, some recognition of the efforts of landowners could be given at any level, from the township on up, and by any agency, from a Conservation Authority to the local naturalists club.

There are advantages to making such stewardship awards on the basis of either written or verbal agreements. The verbal 'handshake' agreement works well for the U.S. Nature Conservancy, as well as Ontario's Bruce Trail Association. It avoids paper work and any semblance of legality, is simple, and acceptable to many owners. On the other hand, written agreements, used by many U.S. States, give somewhat greater long term security of protection.

MANAGEMENT AGREEMENTS:

One step beyond honorary awards are management agreements between an owner and an agency, designed to control specific aspects of the management of natural areas. While few of these are yet in place, the possibilities appear almost unlimited.

Management agreements could be negotiated to protect a few specific hectares where a rare species is found, to protect a nesting area from disturbance during the nesting season, or to protect certain tree species during a logging operation. They could involve leaving an area alone, or actively managing it through brush clearing or even fire, depending on the situation. As with stewardship agreements, they would not normally involve allowing public access, but they would allow access for the agency or organization signing the agreement.

In normal circumstances, such agreements would be clearly written, like a good lease, but they might or might not be legally binding. They could be signed by any organization, but in most cases will likely be negotiated between the Ministry of Natural Resources or Conservation Authorities and private owners.

An important variation of this would be the use of a Woodlands Improvement Agreement through the M.N.R. as a protective strategy. While these agreements are signed primarily for productive forestry, they do allow owners to choose to emphasize wildlife protection as part of the agreement. Even active forestry operations are preferable to a farmer bulldozing his woodlot for agriculture and forestry practices can be modified (through winter cutting only, or through protection of certain species during cutting operations for example), to minimize site disturbance.

An important advantage of this approach, which would have to be negotiated and approved by the District Forester of the M.N.R., might be the tax benefit which results. According to the current *Ontario Managed Forest Tax Reduction Program Guidelines*, rebates of up to 60% of municipal taxes are available to Canadian citizens owning private woodlots that meet minimum criteria.

In each case, the landowner must be able to certify that the forest is being properly managed, certain tree species at certain densities must be present, and a minimum of 10 hectares must be involved. This acreage minimum may be lowered to 4 hectares if the land is under a Woodlands Improvement Agreement, or the management of a registered forester (Ministry of Natural Resources, 1984). In any case, the integration of wildlife management with forestry practices enables this tax rebate to be obtained while some natural heritage protection is also achieved.

LEASES:

Leases are very widely used with urban property, and increasingly used on agricultural land. In a few specific cases they have also been used to protect natural heritage sites. Some of the most interesting work now using this technique is beginning on the Canadian prairies in association with the North American Waterfowl Management Plan. Studies sponsored by Wildlife Habitat Canada have found that leases are widely preferred by farmers as a technique to protect prairie potholes for duck habitat.

There is no reason why leases could not be more widely used, particularly if landowners were willing to offer them at nominal cost to non-profit conservation organizations. Their advantage would be that in the form of a lease, the exact property to be protected could be clearly set out, the owner would retain ownership and a lease is a familiar type of document which can easily be drawn up. On the other hand, the continuing costs of paying for a lease, if high, could be prohibitive.

Another aspect of land leases should also be mentioned. Lease of land for agricultural use virtually never specifies the level of care or attention to be paid to soil conservation or natural heritage protection. Leasees are often free to manage land rather carelessly and do so, as research at the University of Guelph has shown. If the original owner and lessor is sympathetic, one way to protect natural features of leased property is to ensure that such concerns are written into the lease. This might involve very little if any cost to either party.

CONSERVATION EASEMENTS:

Conservation easements are a new tool for the protection of natural areas. However, they have been used to protect historic buildings for many years by the Ontario Heritage Foundation. Their disadvantage is their legal technicality — several lengthy pages of complex legal language that at first glance seems overpowering. However, their advantage is the strength of the agreement which results, which should run with the deed to the property in perpetuity, regardless of landowner changes in the future.

Easements are of several different types. **Conservation easements**, where the holder of the easement has no interest in adjoining land, and holds the easement mainly to protect the area from disturbance (rather than to use it in an active way), are not generally legal under British common law, but are legal if specified in legislation. In Ontario therefore, only agencies of the Crown have the legal right to retain or accept conservation easements.

The main agency actively pursuing such easements is the Ontario Heritage Foundation. Based on its widespread experience with historic buildings, the OHF hopes to be able to apply the same concept to natural areas. Conservation easements have been quite widely used in the United States, where they are even being introduced as a tool to help control soil erosion.

Such agreements are extremely flexible in that any number of conditions can be specified, as long as they are agreed to by the owner and the easement holder. Development can be completely controlled, partly controlled, or only modified slightly. Activities such as forestry, hunting, agriculture, and so on can be allowed, or prohibited, as can public access. Easements can apply to entire properties, or to portions.

Definitions are important. For example, if an easement states that land must be kept in a natural state, both the landowner and the agency must agree on what is meant by 'natural state', a matter somewhat easier said than done.

While it is preferable to keep the document as simple as possible, focussing on the specific natural features worthy of protection, inevitably a fair degree of legal length and complexity results. Thus, an existing easement may look rather overwhelming to use as a basis for drawing up a new one. However, when you look beyond the legal language, almost any concern felt by an owner or agency can be written into the document.

Since the easement is a legal agreement registered on the title of the property indefinitely, the rights and obligations of both owner and easement holder have to be specified very clearly. Stewardship agreements, which are not legally binding, can leave many details unspecified, but they do not have the perpetual legal strength of easements.

Another aspect of conservation easements is the necessity for monitoring. The Ontario Heritage Foundation makes a practice of visiting easement properties once a year to ensure that conditions specified in the easement are indeed being met. Some form of ongoing record is necessary in order that annual reports can be prepared, noting any changes over time. Such a process works best through a co-operative arrangement between the easement holder and the owner, but must be maintained in perpetuity if the easement is to be effective.

There are also possible tax implications from conservation easements. It may be possible to consider the current market value of foregone development for Income Tax purposes when an easement is signed as a gift to the Crown. It may also be feasible to have property taxes reduced. However such tax benefits are still in doubt until ruled on by a Canadian court of law. In some U.S. cases, easements have been shown to increase property values (Land Trust Exchange, 1982).

In any case, the Ontario Heritage Foundation stands ready to assist any owner interested in negotiating an easement. Advice on tax implications, legal questions, and property management can be provided, and a brief policy statement is available from the Foundation (Ontario Heritage Foundation, 1984).

While conservation easements are legally complex, they do provide strong protection for natural heritage, while allowing the owner to retain ownership of the land. Land can be sold, retained, or left to one's heirs. Easements can also be combined with sale or donation of land in a variety of innovative ways. Landowners who wish to ensure protection of certain features of their property when selling could also negotiate an easement in advance as a means of doing this.

OPTIONS WITH TITLE TRANSFERRED:

SALE OR PURCHASE:

As one of the popular techniques in the past when financial resources were more plentiful, purchase of natural heritage sites is a well understood technique for protecting natural areas. Some would say it is the only technique that gives long term assurance of protection. Since a vast amount of experience has been accumulated on this technique with its many variations, a detailed discussion is possible.

There are a number of advantages to acquisition and in cases where owners wish to sell, it is the only choice available. It also is a good means to involve citizens if they must rally to raise funds. In so doing they develop a proprietary enthusiasm which helps to guard the natural area in the future.

On the other hand, acquisition is expensive — for the price of one medium sized property, you can run a landowner contact program to reach perhaps 300 landowners — and in these days, money is in short supply. Ownership also brings an annual property tax burden which must be paid, and in large natural areas, some owners may not be interested in selling.

Once an area is designated for acquisition and owners who wish to sell are identified, the next question is who will do the purchasing and who will end up as owner of the property.

Here a range of possibilities are open. In Ontario most land purchased to protect natural heritage values is bought and then owned by the Ministry of Natural Resources or Conservation Authorities. Often these agencies cooperate with other groups such as the Nature Conservancy of Canada, who may raise part of the funds and buy the land, but will then transfer ownership. The Ontario Heritage Foundation could also be involved cooperatively in raising funds, and could end up as owner, but it has no funds of its own for purchases. These four key agencies can cooperate in a variety of combinations, as shown by the case studies in Chapter 10.

In addition, local naturalists clubs, the Federation of Ontario Naturalists and the Bruce Trail Association have been active both in raising funds to buy land, and in owning properties as nature reserves. In other cases they have contributed funds to government purchases. A new source of funds is the national organization, Wildlife Habitat Canada. Various other organizations could potentially become the owners of natural areas — municipalities, universities, or other government agencies.

Central to most such efforts is the work of the Nature Conservancy of Canada, which assists with fund-raising and work cooperatively with just about any combination of other interested groups. The possibilities are numerous, and perhaps the landowner interested in selling will have views on which agencies would be preferred.

There are a variety of choices within the acquisition alternative, just a few of which will be mentioned here. These techniques are increasingly being recognized as a flexible set of choices for landowners wishing to sell land for natural heritage conservation. Packages can be tailored to suit the needs of individual circumstances.

LEGAL ALTERNATIVES:

Outright Sale — The most obvious and common form of land sale is a straightforward sale at market value. Even these can be combined with other options mentioned below.

First Right of Refusal — Landowners not wishing to sell at present may be willing to offer a group a 'first right of refusal' simply meaning that if and when the owner does decide to sell, they would have the first chance to purchase the land. Since no price is usually specified this merely guarantees you a chance at some date in the future, but the landowner still sets his own price.

Reserved Life Estate — Land can be sold with owners retaining a life-long use of the property, or part of it. The time can be specified, and can extend to children. This strategy is often combined with others in a deal suitable to owners.

Installment Sale — Land can be bought in installments, or with transfer of ownership to take place at some specified date in the future.

Restrictive Covenants — In some cases owners can place restrictive covenants on land prior to sale, in order to restrict future use. It may be possible to use conservation easements in a somewhat similar way.

Saleback or Leaseback — This is the technique of buying land, placing restrictive covenants or an easement against it (registered on the deed), and then reselling or leasing it. Though seldom used now, this technique may be enough to protect many features and deserves wider use.

Bargain Sale — A bargain sale is a sale at less than appraised market value, to a charitable organization which can offer a tax receipt. The difference between the negotiated price and the appraisal value (set by an independent, in some cases government, appraiser), is in effect treated as a donation. Many private owners of large natural areas in Ontario have sold their land to government agencies as bargain sales, getting back their original costs but not present market value, and gaining substantial tax advantages along the way.

All of these alternatives can be used in combination, as can other techniques such as stewardship or management agreements, or easements. Together with a variety of agencies which might be involved, and the possibilities of donations as discussed below, this presents an almost endless series of arrangements which might be used in any one situation. For example, one recent property acquisition included an outright sale, a bargain sale, a reserved life estate, and the work of the Federation of Ontario Naturalists, the Ministry of Natural Resources and the Nature Conservancy of Canada. In another case, an outright sale to a Conservation Authority, a donation from a non-profit group and a restrictive covenant covering management were all involved.

In the case of an owner only wanting to sell his entire property, all of which is not of interest, a purchase and saleback of part to another buyer may be appropriate. As described in Figure 15, the purchase of an option may be useful here, since you can then sell an option over part of the property to a third party as part of the deal. In this way, you do not lose the entire deal if your saleback does not succeed, you only lose the option.

LAND PRICES:

In addition to sorting out what agencies may be involved, and what specific arrangements will be used, negotiations depend on a knowledge of land prices. Sometimes this involves a real estate appraisal, which is an expert's opinion of the fair market price of the land, based on recent sales of similar land in the region. These sales are known as comparables. While a rough appraisal can be done by making enquiries of the township clerk or a local real estate office, if any of the government agencies are involved, a formal appraisal will likely be necessary. This may be supported by the Natural Heritage League, or a government agency, and will be a basic guide to price negotiations. Remember though, that many other factors are equally important in a satisfactory deal.

A related aspect is the present designation of the land under the Official Plan. The value of land is obviously influenced by its designation. Natural areas may already be designated under a protective conservation clause; in this case, market prices should not reflect the value of building lots. On the other hand, be sure that the Official Plan does not restrict your proposals for use of the property.

STEPS TO PURCHASE OF LAND:

Any local group planning land purchase must be incorporated, with the assistance of a lawyer. Your group will need a constitution in order to become incorporated, and there will be some costs involved, but it is essential if you are to own land.

When writing the constitution, consideration should be given to the long term future — if your club were ever to fold. Provision should be made that would ensure that natural areas owned would be passed to another appropriate organization, a government agency, the Heritage Foundation, or the Federation of Ontario Naturalists, whichever you decide.

In order to actually purchase land it is often useful to use a legal device known as an **option**. In Figure 15, a detailed description of the option is provided, and a sample is provided in Appendix A. Options allow you time to raise funds and see if in fact you can afford to purchase a piece of land, while specifying a price. They are legal agreements in which the owner of a property gives you the option of buying his land for a specified period of time. If you successfully raise the funds within the time, the deal can go through; if you fail, you merely lose what you paid for the option. They are therefore extremely useful devices for land purchase.

Offers to Purchase on the other hand are legal agreements to purchase land at a set price. They legally bind you to come up with the money somehow, unless some form of escape clause is written in. Before making an 'Offer to Purchase', your organization would have to formally approve the amount and make the commitment, usually with the help of a lawyer. With options, you give yourself several months to make that decision.

The details outlined in Figure 15 cover many of the specifics which should be kept in mind. They are also useful hints for a situation where a citizen's group is trying to persuade a government agency to undertake a purchase of land. The thrust should be co-operation. Consider all alternatives outlined in this chapter. Only when sale is the preferred choice and agreed to by the landowner should acquisition be considered, and even then many combinations of agencies and arrangements may be involved.

DONATIONS:

Many of the same comments about sales apply to donations. They can be combined with sales, as in bargain sales, or can be outright, covering the full value of the property. In the case of bargain sales, a formal government approved appraisal is a vital necessity. Donations can involve easements or restrictive covenants registered on the deed, or they can be given with a reserved life estate. Donations given while a donor is still living are technically referred to by lawyers as bequests; donations provided for in an estate after the death of a donor are termed a devise. The term bequest is loosely used to cover both circumstances however.

Donations of course open up many more potential tax advantages for owners, depending on how their income is structured. Lawyers from a number of public agencies such as the Heritage Foundation can assist landowners contemplating donations to evaluate their options.

Choice of an organization to which a donation will be directed is important. The same range of possibilities which may be involved in purchases apply here. Government agencies generally have more manpower and money for active management of properties. Groups like the Federation of Ontario Naturalists will also consider accepting donations of land.

It should be noted that agencies will not necessarily accept a donation simply because it is offered. The restrictive covenants an owner may wish to attach to a property may conflict with an agency's goals or policies. Property taxes may be a continuing — sometimes impossible — burden, particularly for non-profit groups. This does not mean that donors' generosity is not appreciated. It does suggest however that whenever possible, a landowner contemplating donating land to an agency should meet with and negotiate the terms of the donation with the agency in advance. Bequests often work to both parties advantage more than do devises, unless negotiated in advance.

Donation of land which has no particular natural heritage value is also of great benefit if the organization is free to sell the land and use the proceeds for heritage conservation purposes. In fact, this may provide the essential initiative for an organization to be able to afford to purchase highly significant natural areas.

Tax implications of donations (or the donation portion in the case of bargain sales) are critical. Generally, donors of land are allowed to deduct the value of the donation from their annual income for tax purposes, up to 20% of their annual income. In the case of the Ontario Heritage Foundation, this can be up to 100% of their annual income. However, this difference is not as meaningful as it first appears, since the deduction can be spread over 5 years. Only in the case where the total value of the donation exceeded the cumulative total of 20% of a donor's income over the 5 years would it be an advantage to donate to the Ontario Heritage Foundation instead of another charitable organization.

FIGURE 15

STEPS TO NEGOTIATING LAND PURCHASES

Over the past two decades small non-profit naturalists clubs in Ontario have purchased nearly two dozen nature reserves through raising private funds. This is natural heritage conservation at its grassroots best. The following comments are based on these experiences.

The Option:

The option to purchase is usually a key to land sales. It sets the price; it holds the land by buying time, and it acts as a catalyst among potential donors of cash.

Unless you are hiring a professional, negotiations should be carried out by a capable, enthusiastic member of your team, who will inspire the confidence of the landowner. A second party makes a handy witness, and two heads are better than one. Do not overwhelm a landowner with a large group of people, but you must deal face to face with the owner, either through an appointment, or dropping in; a telephone conversation is not adequate.

When seeing a landowner, relax and listen; be willing to find common grounds for conversation. Assuming that you are working for a local naturalists club, for example, make clear your position as a liaison. Recognize and honestly admit that your funds are limited; don't raise false expectations. An option is a legal agreement to allow you, or your group, the opportunity to purchase the land, at a specified price, over a specified length of time — perhaps 6 months or a year. In your position as a liaison you must be perfectly honest in asking for an option, pointing out that you need to take the option back to your club for official approval. Options are extremely useful in such a context as they both allow time for negotiation, and result in the specifics being clearly and legally stated.

A typical option form is provided as an example in Appendix A of this book. Note that although you can easily fill this in with a price and property description, and if the owner is willing, get his signature, you should not likely be signing it yourself. In most cases, only an authorized officer of the organization on whose behalf you are working can actually sign.

The Price:

The option agreement will specify a price, which is the main item to be negotiated, but before doing that you owe it to the landowner and yourself to explore all other appropriate alternatives. Depending on an owner's income and tax status some form of donation or partial donation (bargain sale) may actually be beneficial. An owner may wish a reserved life estate, installment payments, restrictive covenants, or an easement as part of the deal. Remember that you are partly working to make the owner feel satisfied, and try to work out a package that meets his or her wishes. Naming of a nature reserve after an owner is one obvious way owners may wish to be remembered.

FIGURE 15 (continued)

A discussion with a landowner can then proceed through various arguments to reach a fair price, assuming you have a good idea of the fair market value in advance. You can point out the value of the land remaining green in perpetuity, its contribution toward the natural heritage our grandchildren will enjoy, how it enhances adjacent property values and how it is being purchased largely through donations from private citizens. Sometimes it may be necessary or useful to discuss the matter with other family members.

Once an agreement on price has been reached, do not delay in getting the option signed. If the married owners are tenants-in-common, secure both signatures. If you are still uncertain about the acreage involved, establish a price per acre, and refer to an approximate acreage, with price adjusted on closing. The option form may state simply Lot 10, Conc. IV, but if a more detailed description is necessary, enter "as per description attached" on the form, and affix a sketch and description on a separate page.

Besides negotiating price directly, you should negotiate a fairly long term option with the minimum deposit. This gives you time to raise the money, and work with your organization to get rolling on the project. With many owners, a low down payment in return for the option is usually acceptable, often as little as \$10.00 for 6 months; a small club trying to purchase a natural area is likely viewed as a special case. On the other hand, if the property is already listed for sale, and you are asking the owner to tie it up for 6 months to a year to give you the chance to raise the funds, a much larger deposit may be necessary.

The revolving loan fund of the Ontario Heritage Foundation is worth mentioning in this context, since it may provide low interest loans for natural heritage purchases. The Nature Conservancy may also be able to help if convinced that you have a good value at the right price. At this point documentation in a brief written form is important (see Chapter 6).

Cash or Mortgage:

While many owners of rural property might prefer a cash sale, to some the cash is a problem since it has to be reinvested. In offering say 25% cash and asking the vendor to carry a 75% mortgage you may be solving a problem for the vendor. Remember his land is good security. You could also be making it easy for your organization to complete the purchase and pay the mortgage off later when funds are available. A "pay off the mortgage campaign" is easy to arrange. So always talk in terms of a mortgage first and don't be shy about asking for favourable terms. You never know until you ask.

A mortgage has to have a term and an expiry date, a repayment schedule and an interest rate, but often vendors are quite willing to negotiate these details fairly freely and it is better to barter here than on the all important sale price. It has been said that it is an art to build a pathway of agreements on small matters leading to the final conclusion, so try to write your own terms for the mortgage if the vendor is willing. The expiry date may be one, five, or more years hence.

FIGURE 15 *(continued)* The choice will depend on the sum of money involved and how easily the money can be raised from other sources. Don't cut yourself short, since you can always pay it off early, providing the mortgage contains provisions allowing full discharge at any time, without notice or bonus, as it should. Ask for a long term at the start, and then negotiate after listening carefully to the vendor's response. And if you think it is possible or desirable that a part of the land be sold off or separated later, think about including a provision for a partial discharge at some future date.

The repayment schedule should be tailored to the vendor's needs, but try to keep it simple. Suggest paying interest only, quarterly or half yearly. This minimizes the payments, which might be important if your club is low on funds at first and also makes bookkeeping simple. If the vendor wants some principal repaid, suggest a lump sum (that is manageable) be added to the interest paid every period — for example, plan to repay \$500.00 plus interest every period.

The interest rate is a key negotiating point. We are all interest rate conscious. You may suggest a low rate at first, but use your judgement. A high rate, say 1% or 2% above prevailing bank rates may attract the vendor and agreement on this point can take the emphasis off the sale price. In reality the vendor knows that you have the right to pay off the mortgage at any time, but he puts this future possibility aside and feels pleased he has obtained a high interest rate. If after some discussion you decide to pay cash suggest a lower price.

In negotiating it is important that both parties feel satisfied with the end result. Take time, be patient, listen to and allow for the vendor's concerns and reach agreements in steps. Be willing to compromise on one thing (eg. interest rate), in return for something else (eg. vendor provides survey). Try to hold firm on a price you feel confident your group can actually pay, but be prepared to offer a small increase to please the vendor and clinch the deal.

Remember that you are bartering in the market place, and the vendor may have many intangible concerns that are as important as price. Make use of all the arrangements you can to end up with a deal that is pleasing to both sides.

The Deed:

Assuming that you have taken out an option, and launched a campaign to raise the funds, and are successful, then you are ready to exercise the option. At this point you inform the vendor that you are indeed going to be able to take up the option, and the lawyers take over. While the vendor's lawyer prepares the deed, your lawyer will search the title through Registry Office records to find any defects — sometimes a time consuming process. Your lawyer will then furnish a certificate of title verifying that the deed is good and free from encumbrances (save those that you willingly accepted or created). A sound title is the foundation of land ownership. A faulty one is a future headache.

FIGURE 15 (continued)

The description in the deed must be acceptable to the Registry Office, and a survey may be needed. You may be able to avoid this cost, but if you are in any doubt, have a survey to protect yourself and to be sure you are buying what you want. It may also be necessary to obtain a separation or consent from the local Committee of Adjustment if you are buying part of an owner's property, but as nature reserves usually do not involve buildings, this is not usually a problem. Remember also to ensure yourself access to a property if it does not front on a public road or road allowance. This can be done through a properly registered easement or right of way, running 'with the land', or passing with the title to future owners.

(Adapted directly from the *Nature Reserves Manual*, Kirk, 1971, with comments by P. Gosling)



ALETA KARSTAD

PIPING PLOVER

Another species on Ontario's endangered species list, this small shorebird nests only on sandy beaches. Because of the attractiveness of these beaches for vacationers and dune buggies, only special reserves can assure a future for this species.

FIGURE 16

UNTAXING NATURE

Summary

Across the continent, it is clear that broad public conservation goals will only be achieved on the basis of greater private efforts, especially by individual landowners. In Ontario, wetlands and other natural areas in private ownership are in jeopardy, largely because landowners are penalized for taking action to conserve their property in the public interest. This proposal recommends a change in the provincial system of property tax assessment to overcome this obstacle and to provide support for private conservation initiatives. Similar proposals have recently been submitted by the Association of Conservation Authorities of Ontario and the Niagara Escarpment Commission to Cabinet.

The proposal was unanimously endorsed at the Natural Heritage League Annual Meeting on November 14, 1984 and by the Board of Directors of the Ontario Heritage Foundation on December 12, 1984. The Natural Heritage League is a network of private and public agencies related to the identification, protection and management of natural heritage areas in Ontario.

Recommendation

For purposes of property tax assessment, all agricultural lands and forest lands, as well as wetlands and other undeveloped lands, be grouped together to replace the "agricultural" class of real property with a new "rural" class, thus drawing together all lands other than those zoned for industrial, commercial and residential uses for a 60 per cent rebate on property taxes by the Province.

Background

While the Ontario government has shown growing commitment to protection of natural landscapes, it cannot stem their conversion to industrial and urban uses without encouraging private organizations to share the responsibility and without promoting private stewardship through equitable property tax assessment. There are few inducements to counter market pressures. In fact, some Provincial policies and subsidies favour conversion of private lands to "higher" uses.

Under the Assessment Act, wetlands and other natural areas are taxed as agricultural or residential, depending on such factors as zoning, size, ownership and actual use.

The opportunity exists to extend property taxation relief to owners of natural areas that is now available to farmers and woodlot owners. As it now stands a wetland converted by Provincially-subsidized drainage to farmland would then become eligible for 60% property tax rebate. The land owner is thus penalized for holding a wetland which has little private advantage, but high public benefit. The carrying costs are forbidding.

FIGURE 16 (continued)

A rationalized tax assessment is now operating in 42 states of the United States, giving tax relief for conservation purposes. Ontario could follow.

Only 25% of Southern Ontario's original wetlands remain and the rest is going fast. We have no time to lose.

Provincial tax relief would send a clear message that the government is serious and fair-minded in its efforts to merge public and private conservation interests and would simplify the assessment process.

Note: At the time this book goes to press, this Proposal is being revised and circulated among Ministries of the Provincial Government. The ensuing Cabinet decision is not yet known.

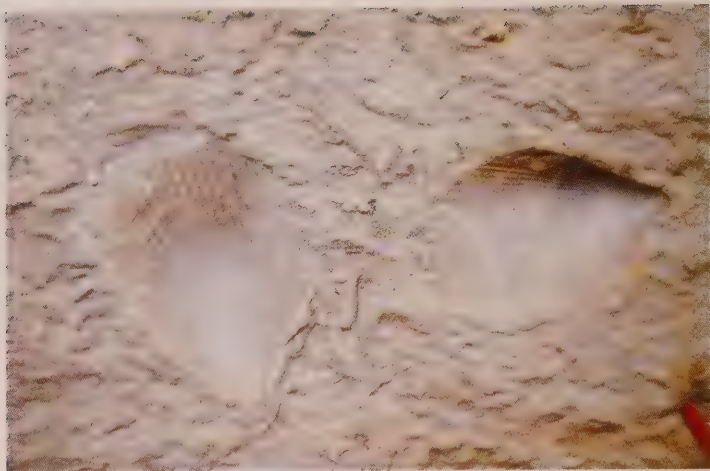
Natural Heritage League



ALETA KARSTAD

MANITOULIN DAISY

This colourful daisy (Hymenoxys acaulis) is endemic to the Great Lakes shoreline. Its blooms decorate cracks in the limestone pavements of the upper Bruce Peninsula and Manitoulin Island, where it is included in the Misery Bay Nature Reserve.



R.J. DAVIDSON

FIGURE 17

CASE HISTORY — WORKMAN'S CREEK

Just east of Meaford, a small stream called Workman's Creek runs the short distance from the base of the Niagara Escarpment to Georgian Bay. The creek at first seems not unusual, but in fact it exposes some of the most significant geological formations and fossils in the province.

As well as containing the Type Sections, or scientific benchmarks, for several rock formations 430 to 500 million years old, this area produces about four dozen varieties of fossils. When a sympathetic landowner became aware of the scientific importance of the site, he approached the Ontario Heritage Foundation to offer a natural heritage easement. Under the easement, signed in 1985, the owner agreed to a set of conditions designed to leave the creek and a buffer zone undisturbed. The OHF is currently developing a formula for assigning a value on natural heritage easements for tax purposes.

Workman's Creek is the first natural heritage easement signed with a private landowner in Ontario. However, this technique is likely to see greatly expanded use as one means of assuring the protection of Areas of Natural and Scientific Interest on private land.



STEWART HILTS

FIGURE 18

CASE HISTORY — MISERY BAY

The story of Misery Bay Provincial Nature Reserve on Manitoulin Island is a complex one. Original biological surveys of the site and contact with the landowners was carried out on behalf of the Federation of Ontario Naturalists. Purchase was made possible through the cooperation of the Ministry of Natural Resources and the Nature Conservancy of Canada. The area, about 680 hectares in all, was eventually acquired by the Ministry after three years of legal negotiations made more complex since the owners were American citizens. These negotiations included the sale of the property at a price lower than market value, with the difference treated as a donation for tax purposes.

Recently, as the Ministry began to make plans for the management of this site as a park, some local opposition emerged, because of the feeling that the park was being imposed from outside. Perhaps if efforts had been made to inform and involve local residents early in the process, this unfortunate situation could have been avoided.

PROTECTION AGENCIES

R. Reid and M. Kirk

A confusing array of organizations, large and small, are active on the conservation front in Ontario. Some are active in land acquisition; others specialize in public education or advocacy; many have other responsibilities as well. This chapter provides a brief overview of those organizations which may be of help when a particular natural area is threatened.

The scale and complexity of projects that can be taken on vary with the organization. Local naturalists clubs have several times directly purchased natural areas in their area, or become involved with government agencies in joint actions. Often their role and that of provincial non-government groups is used to best advantage in identifying and promoting the protection of significant areas. Many private groups restrict their role to increasing public awareness of the need to protect nature, a valuable and necessary service.

Government agencies often have more resources available for major projects, although they usually move more slowly and require a more systematic, documented approach than citizen groups.

As the dollars available for protection of natural areas became more scarce and as the need for quick action on some occasions became more evident, new mechanisms were created to make the best use of all interested agencies. This has led to a new era of cooperation among government and non-government agencies, through the establishment of the Natural Heritage League (NHL).

This chapter describes first the government agencies that have a role in protecting natural areas, most of whom are members of the NHL. It then covers the non-government agencies that are actively involved in land acquisition and then the other citizen groups who belong to the NHL. Finally, it lists a series of other groups who could be sources of expertise or encouragement in natural heritage protection.

Up to-date addresses of conservation groups can be obtained from the Canadian Conservation Directory, issued periodically by the Canadian Nature Federation.

THE NATURAL HERITAGE LEAGUE (NHL):

In 1982 an informal coalition of public and private agencies to promote natural heritage conservation was established, sponsored by the Ontario Heritage Foundation and the Ministry of Natural Resources. The League meets once a year, but the active working group known as the Coordinating Committee meets much more often.

The primary focus of the NHL is in coordinating the protection of significant natural areas. It is currently working closely with the Nature Conservancy of Canada, World Wildlife Fund (Canada) and the Ministry of Natural Resources to identify and protect the last vestiges of Carolinian Canada in the highly developed region north of Lake Erie.

Using a mix of private and public funds, the NHL has also been able to participate in a number of other initiatives. The Natural Heritage Stewardship Program, described in Chapter 4, is one example. As well, the League makes recommendations to the Ontario Heritage Foundation regarding property acquisition and loans from the revolving fund.

GOVERNMENT AGENCIES:

THE ONTARIO HERITAGE FOUNDATION (OHF):

The Ontario Heritage Foundation operates under the Ministry of Citizenship and Culture, but with an independent Board of Directors. It is empowered to preserve Ontario's cultural and natural heritage. While it is well known for its work to preserve historic buildings and archeological sites, it is now actively involved in the natural heritage field. The OHF offers advice, grants, or loans to encourage preservation and restoration of important natural and cultural features. Gifts and bequests accepted by the OHF are eligible for a 100% taxable income deduction, so that private philanthropy directed to an approved cause becomes economically attractive to many donors.

One of the most useful initiatives of the OHF has been the establishment of a revolving fund, which is available for any member of the NHL for the immediate purchase of a threatened property of heritage value. The loan is granted with an interest rate at 5% below the prime lending rate and is repayable within 2 years. This fund has been used by the Federation of Ontario Naturalists to buy important ecological areas on the Bruce Peninsula and Pelee Island.

A special committee of the OHF has also been established to oversee the acquisition of the Niagara Escarpment Parks System. A total of \$25 million in government funding is promised for this ten year program.

THE MINISTRY OF NATURAL RESOURCES (MNR):

The Ministry of Natural Resources, through its Parks and Recreational Areas Branch, carries the main responsibility for identification and protection of natural areas of provincial significance. The provincial parks system has long been the primary vehicle for protection of natural areas, especially within nature reserve and wilderness parks and within the protective zones of other classes of parks. At present, a large number of new parks identified through the Strategic Land Use Planning exercise are being placed in regulation. By the time the regulations are processed, there should be 266 provincial parks in total. Nearly 100 of these will be nature reserves.

Other areas identified as significant by the Ministry are called **Areas of Natural and Scientific Interest** or ANSI's. Some 600 ANSI's have been identified in the District Land Use Guidelines, most of them in Southern Ontario. The Parks and Recreational Areas Branch is building a file of information on these areas, with examples of techniques providing protection to ANSI lands, both public and private. Most of these areas are still in private ownership, and likely will remain so.

The Parks Branch is also preparing management guidelines for ANSI's. Application of this cumulative experience becomes increasingly important as the number of protected areas increases.

Information on ANSI's and other candidate natural areas is available from MNR District Offices, Regional Offices, or at the Parks and Recreational Areas Branch, 3rd Floor, Whitney Block, Queen's Park, Toronto, M7A 1W3.

Other Branches of MNR also bear some responsibility for natural areas. The Wildlife Branch has responsibility for a program of wetlands evaluation, as well as the development of wetlands policy. There is also a system of Provincial Wildlife Areas, which protect wildlife habitats while allowing hunting. At the District Level, important natural areas are sometimes part of Integrated Resource Management Areas, such as the Copeland Forest near Coldwater.

Since MNR is the agency responsible for Crown Land, which covers 87% of Ontario's area, it also has jurisdiction over a host of significant natural areas there. The management of Crown Land is discussed in more detail in Chapter 8.

CONSERVATION AUTHORITIES:

Conservation Authorities are public agencies organized on a watershed basis, drawing their revenue from local tax levies and supported by provincial grants for approved projects and administration. Their prime goal is water management but their mandate under the Conservation Authorities Act encompasses the entire spectrum of conservation. This includes preservation by purchase of scenic landscapes and significant natural areas.

Over the past twenty years some Authorities have acquired many natural areas, especially when assisted by private funding through the Nature Conservancy, the Sportsman's Fund, the Bruce Trail Association, and others. These agencies, or private individuals, have often supplied the levy (municipal) portion of the bankroll to purchase these areas. Since the Authorities are a local jurisdiction, local private donations can be raised to assist this task where citizens would be reluctant to donate to a Province-wide fund. Authorities can also accept bequests of land, again reflecting that power of local pride and loyalty.

Conservation Authorities vary considerably in their outlook and thrust, depending on the attitude of the Council members and staff. Conservationists on Authority Committees can greatly assist in getting a natural area on their agenda and into their budget, but the initial promotion of the project must often come from citizens in the area. The Authorities offer a great advantage: as custodians they have the staff and expertise to manage the area after acquisition, and can draw up the professional reports and documents required for the expenditure of public funds.

Naturalists should keep an eye on areas under Authority ownership, to ensure that recreational development does not conflict with their natural values. Donors of land or money might want to consider including a 'natural condition' covenant in the deed.

In recent years, due to changes in the Assessment Act, even natural areas can now carry a heavier annual tax burden than smaller Authorities wish to carry. As a result, additional donated areas with permanent tax commitments are often rejected, although sometimes with regret. The Conservation Authorities are seeking revisions to the Assessment Act so that they are not taxed for the recreational or development potential of lands that by definition will remain forever natural. Even if the levy portion is met by private donation, most Authorities are no longer eager to acquire property because of these management costs. The flexible action that once made the Conservation Authorities so effective has been curtailed considerably by restrictive budgets and five-year plans. Since Authorities must emphasize the hydrological benefits of a natural area for the watershed, acquisition of wetlands may be of more interest than other heritage sites.

THE NIAGARA ESCARPMENT COMMISSION (NEC):

The Niagara Escarpment Commission was created by the provincial government over 10 years ago to develop a plan to maintain the Escarpment as a continuous natural environment, and to permit only development compatible with that environment. The proposed Niagara Escarpment Plan went through extensive debate and revision, and finally was approved.

Through the decade the Niagara Escarpment Commission has been under intense political pressure to allow conversion of land for development and quarries. The entire planning exercise undertaken to protect the Escarpment taught planners one thing — that extensive public participation and the support of local municipalities and landowners are essential for successful protection of natural heritage.

Now that the Plan has been approved the government's objective is that implementation activities, such as development control over compatible land uses, will be gradually given to the municipalities along the Escarpment. The NEC will remain as a review agency and overseer of implementation activities. Part of the Plan was the creation of a Niagara Escarpment Parks System, with a \$25 million acquisition fund coordinated by the Ontario Heritage Foundation and the Ministry of Natural Resources.

PARKS CANADA:

Within the national mandate of Environment Canada, Parks Canada has responsibility of national parks, national historic parks and heritage canals. In Ontario, there are four existing national parks, including Point Pelee, one of the most outstanding bird watching areas of the continent. As well, this federal agency administers the Rideau and Trent-Severn Waterway systems, which include many natural areas along their length. Recent proposals for a new park on the Bruce Peninsula would protect another nationally-significant natural area. Parks Canada also participates in cooperative programs such as the heritage waterways program and proposed national landmarks program.

THE CANADIAN WILDLIFE SERVICE:

The Canadian Wildlife Service also holds several significant wildlife sites in southern Ontario, primarily wetlands with special importance for waterfowl. Recent drastic budget cuts have forced CWS to place the operations of the Wye Marsh Wildlife Centre in the hands of a local private group. These cuts make further habitat acquisition by CWS unlikely in the near future and that role will likely be taken by Wildlife Habitat Canada.

WILDLIFE HABITAT CANADA:

A national foundation created in 1984 to encourage the retention and stewardship of wildlife habitat in Canada, this is a new organization on the conservation scene. Initial funds came from the federal government. As well, additional funding is obtained through a Canadian wildlife stamp which is affixed to the Migratory Game Bird Hunting Permit. The \$4.00 from the stamp and revenue from the associated print at \$195.00 will be used to reverse the loss of habitat throughout Canada, particularly wetlands. The American 'Duck Stamp' has been highly successful in this type of user-financed assistance to conservation agencies. Wildlife Habitat Canada is already involved in financial support for 11 projects across Canada and is a potentially important source of funds for natural heritage programs in Ontario, whether they be wetlands or any other types of fish or wildlife habitat.

REGIONAL GOVERNMENT AGENCIES:

Several special purpose bodies have been very active in nature conservation in different regions of Ontario. One of the best is the National Capital Commission, which has purchased a number of natural areas around Ottawa and also has an active interpretive program. Three regional parks commissions — Niagara, St. Clair and St. Lawrence — also include natural areas among their land holdings.

Many of the Regional and County governments across southern Ontario also hold forest lands. While the primary aim of these forests is usually timber production and recreation, some include significant natural areas as well.

NON-GOVERNMENT AGENCIES ACTIVE IN ACQUISITION:

THE NATURE CONSERVANCY OF CANADA (NCC):

The Nature Conservancy of Canada was founded 20 years ago to play a similar role in Canada as its American and British counterparts — the preservation of significant natural areas, unique or beautiful landscape features. While some natural areas have been acquired by private organizations without drawing on the NCC, the cumulative expertise and established contacts with Canadian Foundations and philanthropists tend to make the NCC the best route to follow for private acquisition funds. A tax-deductible advantage is provided for donors of cash or land, whether the donors are corporations or individuals. Most Foundations channel contributions through the Conservancy for a conservation appeal involving land purchase.

The Nature Conservancy of Canada generally works in conjunction with a government agency such as a Conservation Authority, the Ministry of Natural Resources, or the Ontario Heritage Foundation. In the past, matching grants to meet the total purchase cost of natural areas have often been available. Of recent years, budget constraints have restricted government contributions, making this practice more difficult.

The Nature Conservancy does not retain ownership of land, but often acts to assist in its acquisition by a land-holding agency. If the NCC acquires land, it conveys the land after purchase to either a private or governmental agency under legal agreement, usually with a covenant in the deed to ensure continued preservation.

An interesting Annual Report is available from the Nature Conservancy of Canada on request, as is an occasional newsletter.

THE FEDERATION OF ONTARIO NATURALISTS (FON):

This 55-year old organization, originally founded to consolidate the interests of nature clubs across Ontario, is now one of the leading spokesmen for environmental concerns and wise resource use in Ontario. Widespread membership, talented leadership and a good magazine, *Seasons*, have generated a thrust that has influenced government's response to resource problems. Historically, the FON sponsored the development of the Nature Conservancy of Canada, the Bruce Trail Association, and the Coalition on the Niagara Escarpment. The FON together with other agencies has recently been working to generate public awareness of acid rain and disappearing wetlands, which are now major social concerns.

Naturalists were the first to feel the loss of natural heritage, so their response came early. The Federation has acquired 10 nature reserves since 1961 by means of donation, bequest, or outright purchase. The Federation has also financially assisted Conservation Authorities and the Ministry of Natural Resources to buy properties of significant ecological value.

Through its Nature Reserves Committee, the FON can refer local naturalists or nature clubs to landowners wishing to evaluate the natural features on their properties. The Federation magazine *Seasons* has published special issues covering the Bruce Peninsula, Wetlands, Provincial Parks, the Niagara Escarpment and Carolinian Canada. This public education can continue, strengthening the hand of the conservation agencies involved in protecting Ontario's heritage.

The Nature Reserves Committee has a long-standing record of natural areas acquisition. Each founding member over the years has instigated the purchase of one or more biological treasures in Southern Ontario through landowner negotiation, and by catalyzing others into raising the necessary funds for successful completion of the projects. A dozen prime heritage areas are the legacy of their endeavours. The Nature Reserves Committee also publishes an occasional newsletter entitled *Sanctuaries*, a useful source of information as well as a potential outlet for written articles.

THE BRUCE TRAIL ASSOCIATION (BTA):

The Bruce Trail, a 700 km hiking trail that follows the Niagara Escarpment from Queenston to Tobermory, was built by volunteers between 1960 and 1967. Some 9000 members, spread through 9 local Bruce Trail Clubs, now actively support the ongoing work of the Association, including trail maintenance, conservation education, landowner relations, hike programs, social events and land acquisition.

Only about 33% of the Trail crosses public land; the remainder is on roads or private land. While trail access to private land on the basis of handshake agreements continues to be a major means of providing a trail route, the long-term security of the Bruce Trail involves the use of other methods.

Since 1971, the Bruce Trail Association has, through its Escarpment Preservation Fund, raised some \$500,000 in donations for the acquisition of land along the Trail. Several properties are owned by the Association and more than 20 others have been purchased by Conservation Authorities and the Ministry of Natural Resources with Bruce Trail Association help.

Nowadays, with rising land values and money in shorter supply, the BTA is working with other Natural Heritage League members to try new tools, such as easements, for securing the trail and its natural environs. Several trail easements have now been registered and more are in the offing.

The Bruce Trail Association is a good example of how dedicated, sustained volunteer effort can combine with the strengths of other government and non-government organizations to produce tangible results in preserving natural areas.

LOCAL NATURALISTS CLUBS:

Many local naturalists clubs throughout Ontario have raised money locally, or sometimes with the assistance of the Nature Conservancy of Canada, to purchase significant natural areas which they protect and manage. Leaders in the endeavour are the Hamilton Naturalists Club (3 natural areas), the Kitchener-Waterloo Naturalists Club (3 areas) and the Toronto, Kingston, Lambton, London and Ottawa Clubs. Naturalists on advisory boards of Conservation Authorities have successfully promoted natural area acquisition as well. The Kingston Naturalists Club is an outstanding example of land-saving via a Conservation Authority.

Most local clubs publish interesting newsletters or journals. These are a prime means of keeping in touch with local naturalists, or spreading the news about heritage protection work. Many naturalists clubs are also active in the land use planning process, promoting municipal protection of natural areas and fighting harmful developments where necessary.



ALETA KARSTAD

BLAZING STAR

A handsome flower of prairies and limestone alvars, the blazing star (Liatrus cylindracea) will only be a part of Ontario's future if these uncommon plant communities are protected.

OTHER MEMBERS OF THE NATURAL HERITAGE LEAGUE:

THE CANADIAN COUNCIL ON ECOLOGICAL AREAS (CCEA)

The Canadian Council on Ecological Areas (CCEA) is an independent national forum established in 1982 to encourage the selection, protection and stewardship of a comprehensive system of ecological reserves in Canada. It draws its membership from federal, provincial and territorial governments, non-governmental organizations, universities and private citizens.

Among CCEA's priorities are the development of a national registry of ecological areas, the preparation of guidelines for the selection and management of sites, the promotion of wider understanding and support for ecological areas, encouraging documentation of and research in them, the exchange of relevant information, and the issuing of various publications related to these efforts.

A "Report of the Biennium" provides an official statement of Council's work at two-year intervals. Copies of publications, and additional information on Council, are available from the secretariat, Canadian Council on Ecological Areas, Ottawa, Ontario K1A 0E7.

CANADIAN BOTANICAL ASSOCIATION (CBA)

The Conservation Committee of this specialty group draws up and presents arguments for the protection of threatened natural areas using members' knowledge and expertise. The present Committee Chairman is Dianne Fahselt, University of Western Ontario.

CANADIAN NATURE FEDERATION (CNF)

This national organization represents all Canadian naturalists and has become an outstanding defender of the environment. The CNF magazine *Nature Canada* is widely read. Good coverage of the Canadian scene and widespread readership makes CNF influential with the Federal Government.

COALITION ON NIAGARA ESCARPMENT (CONE)

CONE is a united front of nine non-government conservation groups operating from FON headquarters under the leadership of Lyn MacMillan. Over the past decade CONE has been a decisive voice in guiding, advising and influencing the government in saving the Niagara Escarpment through the development of a strong plan. CONE will continue to act as watchdog over the honest application of the Plan, particularly to protect the designated natural areas along the 700 km reach of the Escarpment from Niagara Falls to Tobermory. Newsletters keep members updated, and frequent news releases to the press keep the interested public alert and informed.

CONSERVATION COUNCIL OF ONTARIO (CCO)

The Conservation Council is composed of 32 non-government organizations concerned with the wise use and enjoyment of natural resources. Their primary aim is to encourage conservation of soil, water, forests and wildlife. The Council represents over one million Ontario citizens, and its well-researched briefs on current resource problems have been very influential in provincial decision-making. A major interest for the Council is the development of a comprehensive strategy for conservation and environmental protection in Ontario, based on the World Conservation Strategy.

HERITAGE RESOURCES PROGRAMME, UNIVERSITY OF WATERLOO

The Heritage Resources Programme is a cooperative arrangement at the University of Waterloo for an array of educational, research, and information activities. Faculty, students, and staff participating in the Programme work with other agencies such as Parks Canada, the Ontario Ministry of Natural Resources, and the National and Provincial Parks Association of Canada in heritage-oriented research, publications, discussions, lectures, and workshops. Linkages with faculty and students having common heritage interests in other universities are also facilitated through the Programme.

INTERPRETATION CANADA (IC)

This non-government association seeks to foster greater public appreciation, understanding, and enjoyment of Canada's natural and cultural heritage through interpretation. Its members are primarily professionals involved in communicating the meaning of our natural and cultural heritage to the public through first hand experiences.

MAN AND BIOSPHERE PROGRAMME (MAB)

A Canadian national committee oversees the activities in this country of the Man and the Biosphere Programme, sponsored by UNESCO. MAB is an international programme involving more than 100 countries to promote management-oriented ecological research and environmental monitoring related to understanding human use and adaptations to various major ecosystems.

MAB seeks also to establish a global network of "biosphere reserves", each of which has an undisturbed core zone and a surrounding area managed or used in different ways. Each biosphere reserve is to represent characteristic ecosystems in one of the major natural regions of the world, and also serve as an important site for MAB research and monitoring.

Some 243 sites have been designated as biosphere reserves in 65 countries. There are four in Canada, including one in Ontario at Long Point.

ONTARIO PARKS ASSOCIATION (OPA)

This organization functions to exchange information and experience among park supervisors and administrators across Ontario. Activities include promoting municipal horticulture and the protection of civic beauty and natural heritage.

THE QUETICO FOUNDATION

Dedicated to the preservation of wilderness areas for recreation and scientific use, the Quetico Foundation historically rose as a watchdog to conserve the natural beauty of the Shield wilderness of Quetico Provincial Park. Efforts then extended to monitor the integrity of all provincial parks and their development. Public appreciation is encouraged by publication of outdoor books and scientific papers on related subjects, and through the documentary film *Quetico*.

ROYAL BOTANICAL GARDENS (RBG)

This is Ontario's leading scientific, cultural, and educational institution in horticulture and botany, located in the Regional Municipalities of Halton and Hamilton-Wentworth. The RBG is financed by local and provincial governments as well as individual and corporate donations. RBG possesses diverse natural areas on its own extensive properties which include Coote's Paradise and Escarpment lands; it is active in preservation elsewhere in the region as part of its outreach program.

SOIL CONSERVATION SOCIETY OF AMERICA, ONTARIO CHAPTER (SCSA)

SCSA is an international organization of professionals and laymen founded as a reaction to the devastating soil erosion of the 1930's. SCSA focusses its programs on soil and water management issues including erosion, sedimentation, farmland conservation, water availability and use, and the management of plant and animal life associated with wetlands, forests, and other ecosystems. The Journal of Soil and Water Conservation is an excellent and informative publication on these issues.

The Ontario Chapter of the SCSA has membership among many disciplines of professionals working within government ministries, universities, and colleges of agriculture, as well as consultants, farmers, and students of conservation. Members in various agricultural organizations give it a firm base in the farm industry of the province. Position statements include Soil Erosion and Sedimentation, Private Land Forestry, Wetlands, and Conservation Education. SCSA presents award certificates to individuals and conservation agencies making significant contributions to soil and water conservation.

THE SIERRA CLUB OF ONTARIO

This is the Provincial Chapter of the famous and influential Sierra Club of United States, whose basic tenet is to explore, enjoy and preserve the country's forests, waters, wildlife and wilderness. The 350,000 North American members, through political influence and funding, have forestalled the destruction of many scenic natural treasures. The Ontario chapter is a strengthening force to exert the same influence here. One of their slogans is: "Not blind opposition to progress, but opposition to blind progress". The parent organization issues an outstanding magazine to its members.

WILDLANDS LEAGUE

This chapter of the NPPAC is devoted to the protection and preservation of wild places in Ontario. Its emphasis is on the Shield country, and it has, over the years, influenced the Province to preserve wild rivers for canoeists, to increase the number of Provincial Parks, and to discourage "multiple use" in the existing parks. A bi-monthly newsletter *Wildlands* is distributed to members.

WORLD WILDLIFE FUND, CANADA (WWF)

The Canadian branch of this prestigious worldwide organization is devoted to the preservation of endangered plants and animals. Since habitat protection is the key to its objective, the WWF is collaborating with the Nature Conservancy of Canada and the Ontario Heritage Foundation to protect remnants of Carolinian Canada, the vestiges of which remain along the north shore of Lake Erie between Windsor and Toronto.

OTHER AGENCIES IN THE CONSERVATION CONSTITUENCY

CANADIAN WILDLIFE FEDERATION (CWF)

CWF is the national equivalent of the Ontario Federation of Anglers and Hunters. The many members of CWF form an influential lobby, often directed toward the preservation of important wildlife and fishery habitats, or to stop environmentally destructive practices anywhere in Canada.

CANADIAN ENVIRONMENTAL LAW ASSOCIATION (CELA)

Based in Toronto, CELA is the proving ground for young lawyers specializing in environmental cases. Over the past 10 years CELA solicitors have ably represented non-government agencies and individuals at hearings and in court on environmental issues, and have advised and assisted the Provincial Government in formulating acts and regulations that will enable us to live more harmoniously in the natural world. Their fees are minimal.

DUCKS UNLIMITED (DU)

DU is a private non-profit organization devoted to the perpetuation and increase of North America's waterfowl resource. Heavily funded from both American and Canadian hunters, Ducks Unlimited has spent millions of dollars on habitat improvement for waterfowl in Canada, and more recently in Ontario. DU does not buy wetlands but operates under long-term agreements with private and agency landowners. Investment in private marshlands supports the continuity of a seriously threatened resource.

FIELD BOTANISTS OF ONTARIO (FBO)

Organized in 1984, the FBO represents the interests of professional and amateur botanists across the Province, many of whom are actively engaged in identification and inventory of significant natural areas. Its main area of activity is organizing botanical field trips, usually of two-day duration. Notice of field trips appears in *The Plant Press*, a quarterly journal for field botanists. The editor is Jocelyn Webber, 3120 Kirwin Ave., Mississauga, L5A 3R2.

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE (IUCN)

IUCN has its headquarters in Morges, Switzerland, and is a powerful institute with world wide prestige and influence. In 1980, the IUCN, in collaboration with other agencies launched the World Conservation Strategy simultaneously across the world, outlining principles for maintaining nature's life support system on a global scale. Its book "How to Save the World" promotes a strategy to arrest the ongoing ecological destruction of much of this planet, which threatens the survival of many living species, possibly including much of mankind.

NATIONAL AND PROVINCIAL PARKS ASSOCIATION OF CANADA (NPPAC)

This is a private non-profit organization started in 1963 to ensure the protection of national and provincial parks. The Association also promotes and lobbies governments to set aside wild rivers and create new parks across Canada. The excellent journal *Park News* offers up to date articles and news on wilderness preservation problems. The Ontario chapter, called the Wildlands League, produces its own newsletter.

ONTARIO FEDERATION OF ANGLERS AND HUNTERS (OFAH)

This is a 50 year old non-profit organization with 40,000 members, whose purpose is to promote the interests of the hunting and fishing fraternity. Buttressed by the strength of members, OFAH can exert considerable influence on government in the protection of valuable marshlands and fishing streams from drainage or pollution. OFAH is becoming increasingly involved in working with other conservation agencies where their interests coincide, chiefly the preservation of wetlands.

THE ONTARIO FIELD BIOLOGIST (OFB)

Although not an agency, *The Ontario Field Biologist* (OFB) deserves mention as an important journal that publishes scientific articles on the natural history of Ontario. First published in 1946, the journal remains dedicated to reporting articles on the ecology, flora and fauna of the province. Following sponsorship by the Toronto Field Naturalists for some 37 years, the OFB recently has assumed independence to strengthen both its scientific integrity and its provincial scope.

Regular issues of the OFB normally appear semi-annually. The editorial committee welcomes manuscripts from amateurs and professionals on all facets of Ontario's natural history. Over the years, the OFB has reported many substantive articles relevant to the conservation of Ontario's ecosystems and biota, and such contributions continue to be encouraged.

Periodically, the OFB issues special publications, such as published surveys of the biota of the mouth of the Rouge River (1980) and Luther Marsh (1985).

Subscription information is available from The Ontario Field Biologist, c/o Mrs. Rosemary Gray, Subscription Secretary, 36 Haslemere Road, Toronto, Ontario M4N 1S5.

ONTARIO FORESTRY ASSOCIATION (OFA)

This non-profit organization is funded by wood-using industries and government to communicate the importance of wise use of Ontario's forests to the public. The OFA has developed an honour roll of Ontario's largest trees, and is involved in many other educational activities.

FIGURE 19



DONALD KIRK

CASE HISTORY — LONG POINT

A 3200 hectare peninsula projecting into Lake Erie abounds in waterfowl and migrating songbirds in an extensive complex of marsh, dune and forest. Long Point is also a refuge for uncommon Carolinian flora. The Long Point Bird Observatory conducts its major operation near the lighthouse on the tip of the peninsula where migrant birds concentrate before crossing Lake Erie.

Ownership and management of this outstanding natural area is conducted by six different agencies in a coordinated effort. The Canadian Wildlife Service recently acquired the largest and most biologically prolific portion of Long Point, in large part through a donation to the U.S. Nature Conservancy. Some areas still belong to the Long Point Company, a private owner whose wise stewardship has protected much of the peninsula's natural treasure for over a century.



M.D. KIRK

FIGURE 20

CASE HISTORY — PETREL POINT

On the west shore of the Bruce Peninsula, near Howdenvale, the unique fens at Petrel Point had long been a popular destination for naturalists. In 1967, the Federation of Ontario Naturalists accepted a generous offer by a sympathetic owner and purchased 8 hectares for a mere \$2,000. An additional small area was purchased three years later and in 1984, FON acquired a further 8 hectares to forestall cottage development on an adjacent piece of species-rich fen. This final purchase was much more expensive, at the going market rate and was financed by a temporary loan from a special fund of the Ontario Heritage Foundation.

Due to its fragile nature, Petrel Point must also be protected from overuse by management features such as board walkways for visitors.

The balance of the Howdenvale Fen is being protected by the Natural Heritage League's Stewardship Program, well received by several private owners who also treasure the natural garden they own.

GATHERING SUPPORT FROM PUBLIC AND AGENCIES

R. Reid and M. Kirk

Despite the multitude of groups and agencies with an interest in nature conservation, when it comes down to an individual natural area, often the leadership of one person makes the crucial difference. The commitment and enthusiasm of that one individual is the guiding force through a process of protection efforts that is inevitably complex and time consuming.

However, that does not mean that one person acts alone. Unless he is in a position to buy the entire natural area personally, and protect it under his own ownership, some other form of protection will be necessary. And no matter what the mechanism, a small group of colleagues to share the work is an essential first step. After that, you are likely to find yourself dealing with a range of other groups and individuals to gather advice, information, funding, and commitments. On some issues, you will be turning to the public for help.

The chapter looks at some guidelines to help make your campaign on behalf of some worthy natural area successful.

GENERAL GUIDELINES:

1. Assuming that you have a specific natural area in mind, and that you have collected the basic biological information on it, first try to look as objectively as possible at its significance. What sets this woodlot or wetland apart from others in the vicinity? Are the species there rare provincially or just locally? Has it been designated as significant by some agency? Natural areas are often classed as significant either provincially, regionally, or locally, and if you can logically fit your area into one of those classes, it might help to predict where you can expect support.
2. With that assessment in mind, give some thought to which of the many alternatives outlined in this book might best protect its features. Would protective municipal zoning, perhaps combined with landowner contact, be enough to keep it safe? Do you know who the owners are, and their plans and priorities? Are you facing a threat of immediate development that would necessitate a defence before the OMB? Could you make a strong case for acquisition by a government or private agency?

3. Before you dive into your own efforts to save the property, check with other agencies that might be interested. Is it on the acquisition list of MNR, or your local conservation authority, or the Nature Conservancy of Canada? If not, how would you go about making a case that it should be? Is there potential for cooperative action with one or several agencies to further your cause?
4. Once it becomes apparent that protecting the area will need your active work, look at how you might organize your committee most effectively. Even small, informal groups work best when everyone has a clear sense of their responsibilities. You will need an overall chairman, and probably a secretary-treasurer to handle the administrative details. Depending on the issue, you might need a fund-raising chairman. If you are preparing for a hearing, one person might be assigned the preparation of briefs, another the finding of expert witnesses. Often one individual is appointed spokesperson for publicity.
5. Before you go public with your proposal, think about the kind of image you want to project, and how that image will influence potential supporters. Do you want to be seen as a reasonable, responsible group seeking a compromise to benefit all parties? Or as a strongly-committed group of fighters who will go to great lengths to stop a proposed development? Or perhaps as the underdog, a group of poor citizens being trampled by rapacious developers and greedy government? Your choice may depend on how you expect the issue to evolve, or how comfortable you feel in a particular role, but remember that image is your choice. However, keep in mind also that an image is very difficult to change once established.
6. The primary means of affecting how the general public responds to an issue is through the media. The press thrives on colourful stories of crisis and conflict, and is usually happy to report the activities of citizen groups striving to protect a natural feature, especially in smaller centres. Often, the initial contact with the press is through a formal press release, which should be limited to one or two pages of double-spaced type, and should always have the name and telephone number of a contact person for more information. In smaller towns and cities, you can often open the door to press coverage simply by calling your local editor or reporter.

A few rules will help to ensure that your press coverage is a happy experience. First, always be accurate in presenting facts and figures; if you don't know the answer to a question, say so. Avoid the temptation to exaggerate the importance of your story; the media will decide for themselves what kind of coverage it deserves. Cooperate fully with reporters — a policy of openness and honesty is best. Anticipate that news stories will cover your opponent's point of view as well — the media has a responsibility to be fair.

If you are dealing with radio or television, be prepared to boil down your key points into a brief summary — 45 seconds of speaking at a maximum. And if you feel you have been misquoted or your position misrepresented, contact the reporter or his editor to politely ask for a correction (in very serious cases) or for improved coverage in future. No matter how frustrating, you cannot force the media to take your side in a story or editorial — they always have the last word.

7. Watch for parallels between your objectives and those of government agencies which may be able to help. Early in the process, approach those agencies in a non-confrontational way, and explore their views and concerns. Even if they refuse immediate help, keep in touch frequently as your case develops — your persistence may encourage a more positive attitude. Wherever possible, try to encourage cooperation — never make an enemy until you have to.
8. Cast a broad net when looking for allies among other groups that have influence in your community. You may find support for fund-raising or lobbying among professional associations, service clubs, church groups, and so on. A personal approach is always best, preferably in the company of someone known to the group you are courting. If you are presenting your case to a meeting of another group, keep your remarks brief, and try to focus on arguments that will tie in to the usual activities or objectives of that group.

You can often obtain at least a letter of support from provincial or national organizations who sympathize with your cause. This kind of support is sometimes useful to bolster your image but be careful about using these groups to argue your case before your municipal Council. All too often, the Council feels pressured by outsiders, and reacts defensively, closing the door to useful negotiations.

9. The support of well-known local personalities or dignitaries can do much to aid your cause, so be alert for opportunities to involve such people.
10. Photographs of the subject area give immediate and graphic description of what you are trying to save. Black and whites help the press give you coverage when the staff photographers are tied up or are unfamiliar with the area. Make it easy for them. Photographs will help recruit allies from a pictorial-oriented society of the TV era, who might not otherwise be stimulated by a page of print, however skillfully written. Slides can add impact at a public meeting. If you lose the battle, time-lapse photographs will show what happened to the marsh during and after the ditching machines moved in, or the woodlot after it was logged. These can be useful as a record for the next landsaving cause.



JIM RICHARDS

FIGURE 21

CASE HISTORY — OSHAWA SECOND MARSH

Oshawa Second Marsh is the richest remaining marshland along Lake Ontario's north shore. The 90 hectares support 250 species of migratory birds. As a major staging area for waterfowl, the marsh became a nationally significant duck-banding station.

Twenty years ago the City of Oshawa bought the marsh from private owners and conveyed it to the Federal Department of Transport with the aim of expanding Oshawa's harbour facilities into the marsh. Organized and persistent opposition under the leadership of Jim Richards, a local naturalist, drew support from a sympathetic local press and conservationists across Ontario. This resulted in a 15 year deadlock. As the years passed, containerized cargo development reduced the importance of the St. Lawrence Seaway and directed federal policy to the expansion of existing larger harbours elsewhere. In 1984 Oshawa re-zoned the marsh from industrial to conservation. The adjoining Beaton Farm owners have accepted a site plan providing buffer protection to the marsh. The survival of the Marsh, due to the persistent efforts of the Oshawa Second Marsh Defense Association, now seems assured, but transfer of ownership to a conservation agency would be a logical final step.

PUTTING IT IN WRITING:

Sooner or later, no matter what your strategy, a written submission of some kind will be required. This report will likely draw heavily on the biological survey and other background information you have gathered, but it must be concise and in clear language that its readers can understand. Don't try to include every detail.

The first criteria in laying out any report is its intended audience. A submission to the Ontario Municipal Board will be very different in content and style than a report on the same area asking for funds from the Nature Conservancy. In any submission, however, the specific request you are making should stand out clearly. A good journalistic style, with the major points made in the first paragraph in such a way as to lead the reader further into the details, is also useful.

As mentioned earlier in this chapter, photographs are the most graphic way to generate immediate interest, and are often useful in a report. Nature lends itself to photography. Even if the report is not formally printed, leave spaces and glue in black and white or colour photos on the original. Modern photocopy machines reproduce faithfully enough to convey the message of photos interspersed with the script.

In reports requesting the involvement of an agency, or requesting funds for further study or acquisition, get right to the point and be direct and honest about the request being made. While biological information can be summarized briefly, the exact size and location of the property, funds required (total budget and specific requests), and existing support from agencies should be clearly detailed. In a request such as this, agencies will want to know above all exactly what is requested of them, so be perfectly straightforward.

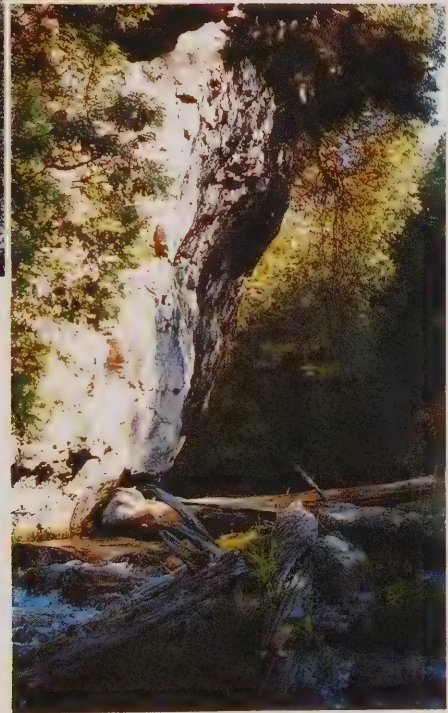
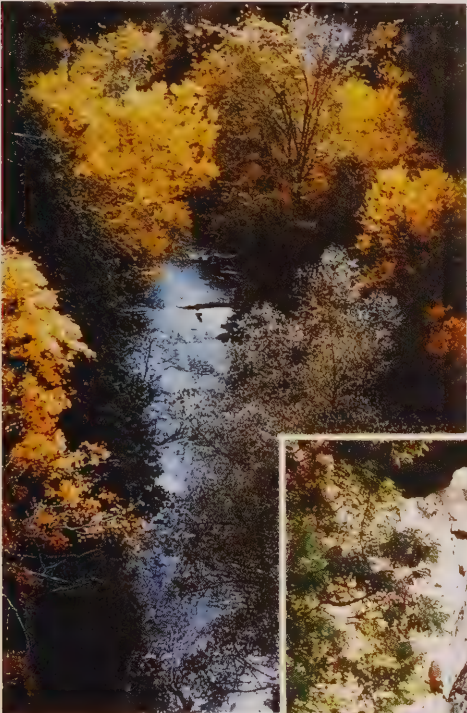
The general structure of such a report might be as follows:

1. Introduction or rationale for preserving heritage area.
2. Project description (target area and values).
3. Budget requirements and proposed sources.
4. Anticipated results & management agency.
5. Necessary appendices (montage of press reports, letters of support from agencies/people, etc.)

An example of a brief report designed to gather support for one particular site, Feversham Gorge, is provided in Figure 22.

FIGURE 22

FEVERSHAM GORGE, GREY COUNTY



SENIOR LEAGUE

FIGURE 22 (continued)

PROPOSED FEVERSHAM GORGE NATURAL HERITAGE SITE

Feversham Gorge is an outstanding scenic asset on the upper Beaver River in Osprey Township, Grey County. The vertical limestone walls, cloaked in large conifers, almost enclose from above the waters of this crystal-clear spring source river. In its present pristine condition, the Gorge represents an important scenic and geological component of Ontario's natural heritage.

The Gorge starts at an old mill dam in the village of Feversham, Grey County and extends downstream 700 meters to a point where the bedrock retreats, and where its character becomes that of a deeply entrenched ravine. From this point the Beaver River flows westward 12 kilometers through a heavily wooded corridor debouching into Lake Eugenia and thence into the main Beaver Valley from Eugenia Falls.

The Grey-Sauble Conservation Authority wishes to secure this portion of heritage Ontario for the following reasons:

1. The geological land form is rare in Ontario — a small scale replica of Elora Gorge.
2. No development has yet infringed on the natural beauty of the subject area.
3. The forest is mature due to difficulties of timber extraction. The vestigial growth of large cedar, spruce and hemlock is now uncommon in Ontario south of the Shield.
4. The future water quality of the river is reasonably assured. Grey-Sauble Conservation Authority and a commercial trout fishery own most of the upstream reaches to the spring source.
5. Table lands above the scarp on both flanks are still forested to a depth of about 150 meters, forming an adequate buffer to the gorge itself.
6. The Gorge is outside the protective designations of the Niagara Escarpment Planning Area. The surest protection against deterioration in this case is purchase.
7. The Gorge is a wild garden of ferns, mosses, and liverworts thriving in the permanent shade of the cliffs and coniferous trees.
8. The rugged steep approaches have sheltered the speckled trout in the river from all but the most determined anglers. This diminishing species is well displayed in the clear waters.
9. The Gorge provides, in populous southern Ontario, a complete escape into a natural experience. No external sound penetrates this environmental box. Access by footpath will be created after property conveyance.

FIGURE 22 (continued)

COSTS AND FINANCING

Recent professional appraisals made of 2 of the 4 properties comprising the main Gorge indicated the following acquisition costs:

- 35 acres (14 hectares)
- Survey and legal fees

TOTAL

Authority Share (to be raised by public subscription)

Provincial Grant

TOTAL

The Grey-Sauble Conservation Authority voted to acquire the Gorge at a regular meeting of 12 June, 1985, with the Authority share to be raised through private donations.



SENIOR LEAGUE

FIGURE 22 (continued)

FIGURE 22 (continued)

AIRPHOTO OF FEVERSHAM GORGE



FIGURE 22 (continued)

THE FERNERY IN FEVERSHAM GORGE

FERNS

POLYSTICHIMUM lonchitis	Holly Fern
PHYLLITIS scolopendrium	Hart's Tongue
DRYOPTERIS felix-mas	Male Fern
DRYOPTERIS goldiana	Goldie's Fern
ASPLENIUM viride	Green Spleenwort
ASPLENIUM trichomanes	Common Spleenwort
DRYOPTERIS spinulosa	Common Wood Fern
DRYOPTERIS marginalis	Marginal Shield Fern
CYSTOPTERIS bulbifera	Bladder Fern
CYSTOPTERIS fragilis	Fragile Fern
ATHYRIUM felix-femina	Lady Fern
POLYPODIUM vulgare	Polypody
PELLAEA glabella	Cliff Brake
CRYPTOGRAMMA stelleri	Rock Brake

MAJOR TREE OVERSTORY

PICEA glauca	White Spruce (large)
TSUGA canadensis	Hemlock
THUJA occidentalis	White Cedar
BETULA lutea	Yellow Birch
ULMUS americana	White Elm

MOSSES

FISSIDENS grandifrons
GYMNOSTOMUM aeruginosum
GYMNOSTOMUM recurvirostrum
TORTELLA tortusa

HEPATICS (Liverworts)

COLOLEJEUNEA biddlecomiae
CONOCEPHALUM conicum
LOPHOZIA badensis
LOPHOZIA gilmanii
LEJEUNEA covifolia
PLAGIOCHILA Asplenoides
SOLENOSTOMA pumilum
SCAPENIA glaucophala

FUND-RAISING FOR ACQUISITION:

Many natural areas will be acquired by purchase, with money from either the public or private purse or both.

When private funds must be raised, you will require a team of influential and determined people ready to go to bat. Generally donors are more attracted to a tangible benefit such as a heritage area threatened with destruction than to an organization involving salaries. Your team should be all volunteer if possible. The first requirement before fund raising is a firm option on at least one property in the area to be saved. This option should be supported by a real estate appraisal or letter of opinion as to its value. When a government agency is involved, a provincial market value appraisal will be conducted, usually after some time lag. The option expiry date then becomes crucial. It should allow sufficient time for these matters to be settled, and the fund-raising appeal to get under way, a time of several months at least. If the purchase is through a non-government agency, a local appraiser of good repute and with no connections to the owner can produce a professional letter of opinion to support the option, which is cheaper than a full appraisal and often sufficient to make potential donors feel comfortable about their investment.

The target of monies required will need to include the private contribution to the purchase price, plus additional funds for legal and appraisal fees (if you lack a friendly lawyer devoted to your cause) and, unfortunately, sometimes surveyor's fees.

Fund raising is a sophisticated art today, and everyone with money is besieged by appeals to worthy causes. Salesmanship, advertising and some techniques of persuasion are all involved. Among many guides is Harold Seymour's *Fund Raising* published by McGraw-Hill, or *Fundraising for Non-Profit Groups* by Joyce Young, 83 Olive Avenue, Toronto, M1G 1V2. Prior study of techniques and practices can increase the returns on your effort far more than learning as you go. In fact, don't start until you have read Joyce Young's book.

The following are a few useful steps for an agency or club embarking on a campaign to raise money to acquire property.

1. You could first approach the Nature Conservancy of Canada, if you believe your property is of more than local significance. The Conservancy has extensive contacts with most Foundations and donors who give to natural heritage causes. Using this agency would channel your request through one agency specifically organized for this purpose. The request should be supported by documented details of the natural area, together with negotiated option price and appraisal.

2. Organize a fundraising committee of the most dedicated respected activists in your community. Draw up a list of citizens who you feel can afford to donate, as well as businesses and industries. Allot to each committee member a dozen contacts — letters, interviews and follow-ups. Needless to say, the member delegated should be personable, enthusiastic and understanding to produce maximum results. The game is salesmanship, good organization and hard work.

The campaign must operate under the pressure of a deadline which is usually the expiry date of the option. Thus the momentum cannot slacken until the money is raised. You can work for six months under pressure. After that, there are always unfulfilled pledges or chance donations from other clubs or naturalists from the rest of Ontario. Once you have a good portion of the required money, timid donors are more willing to help meet the target.

3. Tax deductability is essential to donors, so if your group is not a registered charity, make arrangements in advance for donations to be channelled to cooperating agencies such as the Nature Conservancy, the Federation of Ontario Naturalists, or the Ontario Heritage Foundation. At the same time, the agency who will eventually hold title to the property can be settled.

Normal charitable donations qualify for a taxable deduction of up to 20% of the donor's income, which can be spread over 5 years. Donations to the Ontario Heritage Foundation can be deducted up to 100% of taxable income in one year, which is sometimes an advantage.

4. If you are running a general appeal in the local community, invest some money in a brief but good brochure to be used in mass mailing. The best way to raise money is a personal interview but be sure to leave a brochure with each potential donor if you happen to come away without a cheque. A telephone follow-up may be necessary. The brochure is also a good way to contact some distant former citizen who still retains local affections and who may remember the target area which he enjoyed in childhood. A good example is a one-page flyer used by the Sauble Valley and North Grey Conservation Authority during the early 1970's (Figure 23).
5. If you are not on target at the end of the campaign, you may be able to borrow time by getting a loan from the Ontario Heritage Foundation's revolving fund, which is designed for that purpose. Your heritage area must meet OHF qualifications for acceptance.
6. Newspaper articles and television coverage will draw many contributors. Somebody in your committee usually has journalistic and TV connections. Make it easy for busy media people by providing visual coverage of your area. A threat to the natural area usually will be seized upon by the media. The public still has a place in its heart for orchids, bluebirds and big trees in jeopardy.

7. Other Foundations sometimes donate to conservation causes, but not always through the Nature Conservancy.

The Canadian National Sportsman's Fund has contributed generously to acquisitions, particularly where the emphasis is on preservation of game habitat such as marshlands. The report and appeal must be submitted in November, and you will not know if your appeal is successful until the following March. The newly constituted Wildlife Habitat Canada also promises to become an important source of funds, particularly if the preservation of a wetland is your goal. If you are trying to save a duck marsh or trout stream, you might also try the Ontario Federation of Anglers and Hunters, or the Canadian Wildlife Federation, both with large memberships and some project money.

Finally, do not be discouraged. Over the past several years, small Naturalists Clubs have raised several hundred thousand dollars in total, and the Nature Conservancy of Canada has raised several million. It is possible.

FIGURE 23

SAMPLE FUND-RAISING FLYER

Sauble Valley & North Grey Conservation Authority *Conservation Crisis in Grey-Bruce*

HELP US PRESERVE THE NIAGARA ESCARPMENT

The rugged grandeur of grey cliffs with their forests and waterfalls forms the greatest scenic and recreational feature of the Grey Bruce landscape. To assure that the Niagara Escarpment and Bruce Trail will remain undamaged and available to the people and their descendants, the Conservation Authorities wish to acquire as much Escarpment as possible while the opportunity remains. This chance will not endure for long in a rapidly changing Ontario. Fast Action is needed.

Although the two Authorities have already purchased 4,000 acres of Escarpment lands, we lack sufficient local tax revenue to acquire important remaining areas at once. We need your help.

- YOUR CONTRIBUTION IS DEDUCTIBLE FROM INCOME TAX
- THE ONTARIO GOVERNMENT GRANTS US THREE HUNDRED DOLLARS FOR EVERY HUNDRED WE CAN RAISE LOCALLY. YOUR CONTRIBUTION WILL THUS BE MULTIPLIED BY FOUR
- ALL PURCHASES WILL BE MADE AT FAIR MARKET PRICE, AND SUBJECT TO EXPERT APPRAISAL
- WE WILL BE BUYING ESCARPMENT, NOT EXPENSIVE LANDS SUITABLE FOR AGRICULTURE OR HOUSING.

A few citizens have already assisted us. We now ask for your financial help. Please send your cheque to Conservation Authorities, 715 Third Avenue East, Owen Sound, and you will receive a receipt for income tax purposes. Then take a drive out to see the heritage of unspoiled landscape you are helping to preserve, both for your family and for coming generations.

**YOUR DONATION CAN HELP PRESERVE THESE BEAUTY SPOTS
FOR PUBLIC ENJOYMENT — IF YOU ACT QUICKLY**



OVERHANGING ROCK SKINNER BLUFFS



BEAVER VALLEY FROM NIAGARA ESCARPMENT

UNDERSTANDING MUNICIPAL LAND USE PLANNING

P. Hale and C. Bowman

In the settled parts of Ontario, the use of land is chiefly controlled through a Provincial statute entitled The Planning Act. This legislation empowers local governments to establish policies for the use of land within their municipalities through two mechanisms called the Official Plan and the Zoning Bylaw. (On the Crown lands of northern Ontario, a different process, described in Chapter 8, is used.)

While the municipality is developing Official Plans and Bylaws, it follows a prescribed formula for involving the public, affected ratepayers, and landowners. Within this process, natural areas can be identified by either the municipality or by an interest group, and policies can be developed, to protect these important features. The Planning Act provides for open and fair input by landowners into their municipal government's land use decisions.

Understanding the land use planning process in Ontario is vital both for landowners and for conservationists. First of all, land use planning generally protects the private owners of land from incompatible neighbouring land uses and inappropriate development. It is also widely used to protect farmland, providing a secure context for continued agricultural production without land use conflict.

In addition, land use planning can be used productively for protecting our natural heritage, just as historic buildings can be protected by municipal designations. The most useful requirement in this case is public (including landowner) support. With such support, municipalities may designate in their Official Plans environmentally sensitive areas or other types of conservation lands. Achieving such designations can be a very long time consuming process, and involve a great deal of public education and participation, but in the long run may be of very positive benefit.

However if land use planning is used to protect natural areas in the absence of landowner support, confrontation is highly likely. The result in this case may well be a major step backwards for heritage protection. Certainly there will be cases of ultimate disagreement, but a positive approach backed by public support is clearly the appropriate route.

While the mechanisms described in this chapter are the usual planning procedures used in the settled parts of Ontario, there are several notable exceptions. Chief among these is the Niagara Escarpment Planning Area, in which land uses are controlled under a special piece of legislation, the Niagara Escarpment Planning and Development Act. A special Commission has prepared a Niagara Escarpment Plan, now approved, and oversees its implementation. Planning appeals are not to the OMB, but rather to a specially-appointed board of Hearing Officers. A similar mechanism, though without a Commission, has been established for the Parkway Belt.

As well, part of the planning responsibility in parts of southern Ontario lies with Regional Municipalities. Planning in this context is very similar to the municipal process described here, resulting in a Regional Official Plan. Zoning is still carried out at the local municipal level. These Regions are especially relevant to conservationists because many of the Environmentally Sensitive Areas studies have been carried out at that level.

OFFICIAL PLANS:

Official Plans are the primary policy document developed by a municipality to guide its land use decisions. Official Plan designations are usually general in scope and relate to ill-defined areas of land. For example, official plan designations for natural areas may include such designations as watercourse protection, hazard lands, environmentally sensitive areas or in some cases, a catch-all designation such as agricultural or rural. General areas are mapped depicting these designations but due to the scale of the mapping involved, it is not always possible to accurately pinpoint the edge of designations relative to on-ground landmarks. Some policies occasionally allow on-site refinements after consulting the local Conservation Authority and the Ministry of Natural Resources.

Policies are prepared for each land use designation and usually a brief description of the proposed uses is included as background material. These policies are simple expressions of Council intent in guiding the growth of the Municipality. The Municipality is required to include proposed public facilities (eg. roads, landfills), so review of the Official Plan is important. Natural area policies usually relate to the importance of the natural area and a requirement for appropriate study prior to changing the use of the land to some other designation.

Natural Areas involving water are often treated as hazard lands or floodplains and policies are included prohibiting development because of the flood hazard. This is a very important designation from a natural areas perspective in that the Province has set standards for the management of floodplains and other hazard lands which in large part preclude any form of development. Hazard lands also include steep slopes and swamps, which are unsuitable for development.

FIGURE 24

DESIGN WITH NATURE

The concept of environmental planning, or '*Design with Nature*' as expressed in the title of Ian McHarg's classic book, is simple but revolutionary. In the past subdivisions and other properties had been planned with little regard for the natural landscape. However, it is quite possible to design developments so that they do fit into the landscape appropriately. If this is done, natural areas can be protected as parkland, with streams, steep slopes, and other natural features included in open space corridors, and historic buildings put to appropriate uses and so on.

The first step necessary is an environmental inventory to document those natural features worthy of protection.

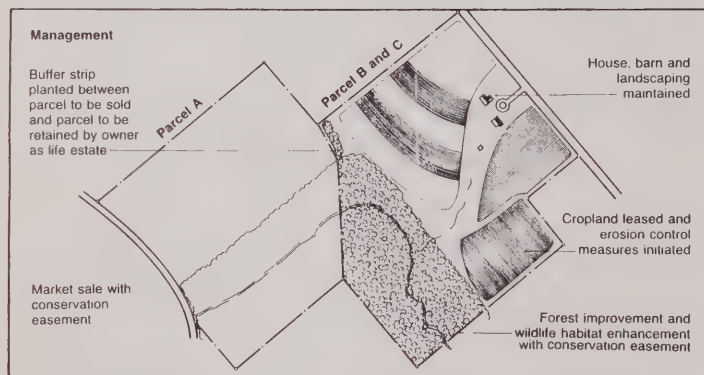
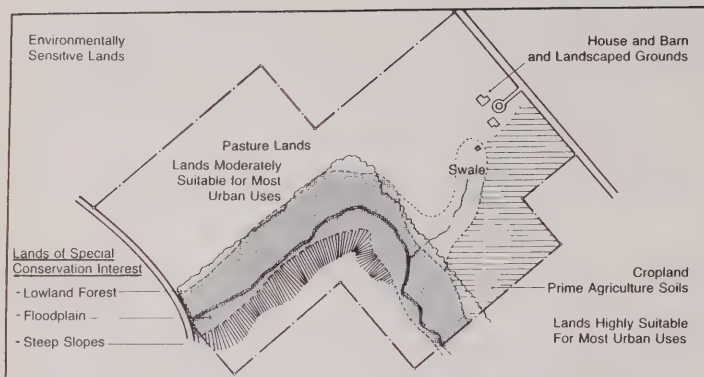
First, the physical landscape, the vegetation and wildlife are described. Secondly, the different areas within the project are evaluated for suitability. Priorities may have to be set, and expert evaluation of some habitats may be necessary to determine whether they would survive in the context of the proposed development. While flat, well-drained open areas may be the best for development, forests, wetlands and floodplains are usually better kept natural. Finally, actual decisions are made on the basis of this environmental evaluation.

It might be expected that this planning process would lead to large costs in building, but experience to date in Ontario has suggested that better developments may often result when the natural environment is taken into account during the planning stage, with very little or no increase in costs, and good potential for increased housing values as a result.

Environmental planning or 'design with nature' concepts are being applied at all levels of land use planning. At the regional or county level, environmental inventories are now essential background information for Official Plans. At the subdivision level we are slowly moving from 'flat earth planning' to 'ecoplanning' (Dorney and Rich, 1976).

On individual farms, even without formal plans, farmers often deliberately incorporate woodlots and fencerows into their management. In a few cases *Farm Conservation Plans* have been prepared, showing how farmers can implement not only soil and water conservation practices, but other conservation measures to protect natural areas. The British Countryside Commission is leading the way in this area (Countryside Commission, 1985). Similarly, the U.S. Nature Conservancy and other American land trusts have worked with many individual landowners to develop plans for their properties, especially when donation of part of a property is being considered (The Natural Lands Trust, 1982). The following series of maps illustrates in a simple how way this might be applied to a single property.

FIGURE 24 (continued)



Natural Lands Trust, 1982

FIGURE 24 (continued)

The importance of this concept in land use planning cannot be over-emphasized. Much current effort to protect natural heritage values is being directed toward individual sites or 'Islands of Green', but in the long run this is not enough. If we do not learn to manage the landscape as a whole more carefully, we may still lose many species and much of the genetic variability of those remaining natural areas.

Using a system of protected natural areas as examples of proper management and incorporating environmental planning into the development process can work together to protect much more of the natural diversity of our landscape.

S. Hiltz



YELLOW-RUMPED WARBLER

This common warbler is but one of the 34 species of these lively insect-eaters that nest in Ontario. Some species, such as the prothonotary, require specialized habitats and could be easily lost.

ZONING BYLAWS:

Zoning Bylaws extend the Official Plan Policies to a form that binds property owners. Zoning Bylaws are very specific in nature with boundaries of zones relating to existing roads, lot lines, or identifiable landmarks. Zoning bylaws contain specific statements on the activities which may take place within a particular designated area. For example, watercourse protection area provisions may list a variety of permitted activities, and specify minimum elevations for structures or setbacks from channel banks.

Building inspectors and Bylaw enforcement officers enforce the Zoning Bylaw (rather than the Official Plan). As a result, it is important to ensure that features worthy of protection are accurately depicted on the map schedules of the bylaw, and that the bylaws' requirements for the zone are accurate and specific enough to be enforced.

To be effective, citizens should become active in reviewing Official Plans and Zoning Bylaws during their preparation and before they are approved. If policies in either reflect a preference for protection of natural areas, then the onus is on the developer to prove to the Municipal Council that the designation should be changed. If zoning results in some form of developable designation, the onus is on those who wish to protect the environment to prove that the development should not be allowed to go ahead.

It is much easier to guide the shaping of the Official Plan or of Zoning Bylaws before a specific developer arrives with a proposal for development of your favorite natural area. Fighting a rearguard battle to prevent a development which has already been approved in principle through the Official Plan designation is much more difficult. In the early stages of plan preparation all citizens have an equal and fair chance for input.

In some municipalities 'Environmentally Sensitive Areas' have been usefully designated as part of local Official Plan policies, with community support. The story of this process is told in Figure 25.

In addition to the Official Plan and Zoning Bylaw, there are a variety of tools available to Municipal Councils to influence development within municipalities. Such procedures as site plan control, structural control of buildings, and servicing requirements for sewage and water can all be examined and used to reduce the impacts of a development once it has been approved in principle.

Each of these aspects of the development must be approved by Council or its staff, offering opportunities for protection. For example, the layout of lots in a subdivision can leave environmentally sensitive areas in a parkland designation. Actual density of buildings, location of roads and construction practices can be specified in a development agreement. The message here is that even though the battle to prevent development is lost, it is still possible to attain partial success through modification of the development proposal with good environmental planning.

FIGURE 25

DESIGNATION OF ENVIRONMENTALLY SENSITIVE AREAS

One particularly innovative approach to the protection of natural heritage in recent years has been the designation of 'Environmentally Sensitive Areas' in local Official Plans. The Region of Waterloo was the successful pioneer in this, but the process has since been applied elsewhere with good results as well.

Environmentally Sensitive Areas are simply natural areas which have been clearly documented and evaluated as having some significance in the local region. Several steps are followed in providing a protective designation within an Official Plan.

- 1 — The establishment of a local 'Environmental and Ecological Advisory Committee', or in its absence the formal decision by a sponsoring agency such as the local Planning Office, Council, or a Conservation Authority to undertake a survey of environmentally sensitive areas.
- 2 — Documentation of the biological significance of sites, often through co-operation with Universities through summer field studies or through hiring of a consulting firm.
- 3 — Presentation of proposed E.S.A.s to the municipal council as part of an Official Plan.

The policy which has normally been associated with such areas does not prevent development, it simply requests careful study of all environmental factors before a decision is made. Based on this assessment development may or may not be approved, but good environmental design and protection of special rare features is certainly encouraged.

Part of the process in the Waterloo case was the notification of all landowners who would be affected. Virtually all landowners supported the plan and this was a vital part of their success. In some areas a long, slow process of public education may better precede such policies, in order to allow time for the development of support before policies are put forward. The best situation occurs when municipalities are drawing up new Official Plans and conducting a formal review of all policies. Policies for protection of Environmentally Sensitive Areas can then be considered in this context, with full public review.

Further detailed discussion of the means, values and problems of designating Environmentally Sensitive Areas in Official Plans is found in a number of academic references (Eagles, 1984; Francis, 1977; Hilts, 1983).

S. Hilts

With the abolition of local planning boards, most planning matters are now dealt with by Municipal Councils as part of their agenda. Thus the public may be unaware of pending activity because the press is absent, or citizens may not realize that an issue of concern is on the agenda. Usually the Municipal Clerk will cooperate in notifying you when these issues will be discussed if you request his help.

Often details of a development already permitted by the Official Plan are not open to public discussion. The Planning Act contains no public input clauses for site plan control or subdivision approval, so power to participate does not always exist.

Dealing with Councils within the planning process is as much a mechanical process as it is an emotional one. The route of making your views known and some suggestions for effective interaction are described in the following section.

PRESENTING YOUR CASE TO LOCAL GOVERNMENT

Once it has been determined that a natural feature is indeed threatened, it is necessary to understand two things: first, the planning process which the development must undergo and; secondly, the best approach in dealing with the decision-makers who must approve it.

First, it is necessary to understand the process by which local government deals with this type of issue. The points noted below are general in nature but are practiced in some level of detail by each Municipal Council in Ontario. An understanding of this is central to successful operation within the system.

In terms of background, it is necessary to understand that:

1. All development applications go through a planning process as determined by the Planning Act and directed by the elected local Council.
2. Council meetings are open to the public and are often under the scrutiny of the various media.
3. Council does not make its decision in a vacuum. It receives input from its own staff, from a variety of Provincial and other governmental agencies, from the landowner, individuals located adjacent to the development and from ratepayers from within the municipality who are interested in the proposed course of action.
4. Delegations may appear before Council or its committee to present arguments either for or against the proposed course of action.
5. Council decisions relating to Official Plans and Zoning Bylaws can be appealed to the Ontario Municipal Board.

Councils operate according to procedural bylaws which set the method by which meetings are conducted. The bylaw will set responsibilities of the head of Council, time and place of meetings and most importantly, the method by which delegations are placed on the agenda. This ranges from showing up at the appropriate time to requesting the Clerk of the Municipality to place the delegation on the agenda. Often time limits are imposed on delegations and prior knowledge of this will allow a presentation to be tailored to that time frame.

The question of status is an important one. Under the new Planning Act approved in 1983, anyone interested in a change in Official Plan designation or zoning can appear before Council to present a point of view and, in addition, he or she can object to the decision of Council and appeal that decision to the Ontario Municipal Board.

The issue of status is important only as a second line of defence as it usually means an appeal of the Council decision is already contemplated. The first line is presenting the initial case before Council. The following sections suggest some ideas for dealing with municipal Councils and for getting a point across in a relaxed, non-confrontational manner.

HOW COUNCIL MEETINGS OPERATE

Council meetings, as noted previously, are open to the public and range from being formal to very relaxed depending on the particular Council and often on the size and complexity of the municipality. It is important to gauge this beforehand and to design any presentation to match. As with any group, interaction in the "normal" manner is much more comfortable and therefore more productive than interaction which creates an uncomfortable feeling among the participants. Often the Clerk or other municipal staff will explain the method by which Council normally operates and should be approached well before the meeting.

At the actual meeting, the delegation will likely be one of several who wish to speak on a variety of issues. It is important to be clear, succinct and to leave a lasting impression. Often some form of short handout, simple bright charts and a few pictures will assist in getting the point across.

Councils traditionally hear delegations in one of two ways. The most common practice, particularly in large municipalities, is to hear all delegations on all matters before Council at the start of the meeting and then to deal with the issues as they come up in the agenda. The other alternative is to hear delegations on single issues as they occur on the agenda. If the former method is practiced, it is important to remain in the Council Chambers until the agenda item comes up even though presentations were made at the beginning. It is important to appear interested throughout the process and ensure that Council is aware that large numbers are interested in its decision.

At the Council session, in addition to the delegations there will be a variety of other actors. In a larger municipality staff representatives of municipal planning, engineering or parks departments will be in attendance and will have made their views known to Council through a variety of reports. It

is important to review these prior to the meeting in order to determine allied arguments as well as those which are worth taking to task. In a smaller municipality the staff complement may not exist or may be replaced by consultants retained by Council. In either case, it is important to ascertain staff positions and to deal with them in any presentation.

A great number of other agencies have input to the Council decision. Usually a variety of Provincial Agencies and local or regional boards or commissions have input into planning decisions. Those of particular interest to individuals concerned with protecting natural areas are the Ministries of Environment, Natural Resources, Agriculture, Citizenship and Culture, Niagara Escarpment Commission, local Health Units and the Conservation Authorities. The role of these provincial agencies is discussed in Figure 26. Most of these agencies will have supplied comments to the Municipalities dealing with the impact of the proposal on their individual mandates. If an outside agency clearly supports the position a delegation wishes to make, a request should be made to that agency to appear before Council to add weight to the argument. Also it is important to have answers to resolve negative points made by these agencies.

Prior discussion with members of these agencies who are conservation oriented may generate their support for your cause. Otherwise these agencies may not become involved, due to peripheral interest, time constraints, or influence exerted on them by others.

It is important to be well prepared, to make contacts prior to the meeting, and to identify the procedures involved. It is critical to have well-formulated proposals to be considered, to be able to answer questions on the position being put forth and to have identified potential allies and foes.

Bear in mind that your appearance before Council is only the final chapter in a long series of actions, particularly if you are dealing with a large municipality possessing strong professional staffs in planning, engineering, recreation and other areas. You should begin your work as soon as you become aware of a proposed revision of the municipality's Official Plan, by contacting the planners and other staff who will put their recommendations to the elected officials, and expressing your concerns rationally and reasonably. If you can get to the planners before they have framed their recommendations, you may well be able to head off threats to natural areas before they materialize. Once a development proposal begins to pass through the municipal bureaucracy, it gathers commitments as it goes, so that by the time it reaches the elected Councillors, nearly all the staff may have to support it.

Also, before the Council meeting at which you are to make your presentation, you should contact all councillors, preferably through individuals personally known and respected by them, in order to explain your concerns. Your aim should be to encourage those who are sympathetic to stay with you, to present your case factually and dispassionately to the undecided, and to acknowledge politely (and briefly) the disagreement of those who oppose you. With this preliminary effort, you may be able to enter the Chamber on almost an equal footing with your developer opponents.

FIGURE 26

THE ROLE OF GOVERNMENT MINISTRIES IN PLANNING

Several provincial government ministries or agencies play important roles in the municipal land use planning process in Ontario. Central to these is the Ministry of Municipal Affairs and Housing (M.M.A.H.).

All Official Plans and amendments and Zoning By-laws are submitted by municipalities to the M.M.A.H. for approval. This Ministry in turn distributes the plans to other government offices for comment. Usually some revisions are required in order to bring municipal plans into conformity with provincial policies of various types. Approval of the local Official Plan or Zoning By-law is then eventually provided by the Minister of Municipal Affairs and Housing.

Other ministries play substantial roles in reviewing and commenting upon such documents. In fact, several ministries maintain a 'Plan Review' section within their staff for this specific purpose, and some have developed or are developing policies to assist municipalities in meeting their concerns. Primary among these is the Ministry of Agriculture and Food (O.M.A.F.) which has had the *Foodland Guidelines* in place for several years now. This pamphlet describes the concerns which O.M.A.F. has for the protection of agricultural land, and provides a provincial policy context for local planning decisions.

The Ministry of Natural Resources (M.N.R.) has recently put forward similar guidelines for the development of pits and quarries, and development on or near floodplains. A discussion paper is now out proposing such guidelines for wetlands in the province. Other ministries are expected to follow suit with guidelines on other topics, since the new Planning Act specifically encourages such policy statements on matters of provincial interest.

The Ministry of Natural Resources also maintains a large land use planning program of its own. It has produced *District Land Use Guidelines* for each of its 47 Administrative Districts across the province. These plans are not of the same nature as municipal Official Plans; rather they reflect M.N.R.'s concerns for natural resources such as forests, aggregates, natural areas, and wildlife. They do not override municipal plans, but the Ministry tries to persuade municipalities to include these guidelines in their Official Plans. In cases where the local government level refuses, the provincial ministry can request an Ontario Municipal Board hearing, as can private citizens.

In any case, familiarity with the programs and policies of such provincial ministries, especially the Ministry of Natural Resources, is an essential aspect of understanding land use planning.

S. Hilts

THE PRESENTATION:

This section will deal with the method of presentation, not its factual content, and is based on the premise that how material is presented is at least as important as what is to be conveyed.

Contacts with supportive Councillors before attending a Council session allows your delegation to gain some insights on how other members of Council respond to various methods of delivery. During such a meeting it is also possible to arrange for an interested member of Council to ask questions designed to highlight a particular point or to extend the presentation beyond the allowable time period. If possible, the delegation should also meet with the head of Council prior to the meeting to ascertain his or her position and to determine any favoured procedural methods.

These prior contacts help make individuals more comfortable with and supportive of your view, allow discussion in a non-confrontational setting, allow a warm-up presentation of the assembled material, and allow assessment of your proposed approach by politicians functioning in the political process. A dress rehearsal can fortify your presentation.

At the Council meeting itself it is important to achieve a comfortable, non-confrontational setting. Your delegation has a set of objectives it wishes to achieve; so does the Council. It is important that the resultant strategy is not viewed in a win-lose context because nine times out of ten, the delegation will lose and their opponents win.

Rather, you should strive for a win-win situation. The presentation should address issues in a manner showing Council and its individual members in a positive light by adopting your position. Contrary arguments which make sense should be dealt with by proposing more palatable alternatives and not ignored. Avoid using the argument that Council has no choice but to agree with your delegation. Human nature being what it is, Council will be more likely to prove that in its opinion, your option is only one of several.

The issue of the packed town hall must be dealt with very carefully. If all of those in attendance are municipal residents and several have high profile in the Community, then it is of some use. If, on the other hand, the hall is full of nature club members from far and wide, the Council is just as likely to "protect" its residents from this perceived threat to local autonomy. Even if the hall is packed, care must be taken not to appear an unruly mob. No council wants to appear intimidated by numbers. In the same context avoid ultimatums, absolutes, or threats of resorting to the ballot box, as these facilities are quite meaningless in reality and create feelings of animosity or of being "boxed-in". You should attempt to be as co-operative as possible.

Actual presentations, if possible, should be made by influential municipal residents or by a lawyer from the community. Your lawyer should be experienced in dealing with Councils and Municipal matters, and if possible on good terms with Council. It is particularly useful if the presenter is on a first name basis with some of the Councillors. This will add to a relaxed, mutually constructive session and increase the likelihood of favourable consideration for your cause.

Lastly, while only one option should be put to Council, it is necessary to have a fall back position should negotiations appear to be heading for partial success. Prior to the meeting, deal with the minimum acceptable position. Develop a method of back tracking which will lead to a position better than the minimum acceptable. This approach plus the avoidance of absolutes, confrontations, and personal insults will ensure in most cases at least, a reasonable compromise. The message here is to establish the minimum acceptable, not the "perfect" choice, and devise a game plan which will lead to it. Win or lose, the development impact can be minimized through site planning. Even after approval, a developer may find that constraints imposed could make his plan economically unfeasible, or may be willing to complete his design in a manner more acceptable to those who initially opposed it.

Once the presentation is complete, the decision is Council's own to make. It will weigh the inputs of delegations, its staff, and other agencies, and finally reach a conclusion in a democratic fashion. This results in an amendment to the Municipal Official Plan or Zoning Bylaw. Once this decision is made, groups must weigh that decision and decide whether acceptable success has been achieved or whether future action is required.

This future action usually is an appeal of the Council's decision to the Ontario Municipal Board (OMB), a provincially appointed tribunal, established in part to hear appeals from the decisions of Municipal Councils on planning matters. Following are some suggestions for functioning in the more formal OMB environment.

THE ONTARIO MUNICIPAL BOARD:

OBTAINING A BOARD HEARING:

Before any proposed change of land use goes before the OMB for a hearing, there must be an amendment to either the municipality's Official Plan or Zoning By-law. If such an amendment is being considered by a Municipal Council, any concerned person or group should submit in writing to the Municipal Clerk a request for "Notice of Passing" of the amendment. This will ensure that you are notified when the By-law adopting the amendment is passed by Council.

Within 35 days from the date of passing of the by-law, any person can appeal its adoption by filing with the Clerk, a "Notice of Appeal", which must include the objection as well as reasons in support. An example of such an intervention is provided in Figure 27. Once an appeal has been made, the OMB must usually hold a hearing. Notice will be given to the parties to the appeal, and to other persons the Board considers appropriate. In very rare cases, where the OMB is of the opinion that the objection is frivolous, it may dismiss the appeal without holding a full hearing.

FIGURE 27

SAMPLE ONTARIO MUNICIPAL BOARD INTERVENTION NATURE CONSERVANCY OF CANADA

Intervention at the Ontario Municipal Board Hearing of 24 November 1980 with respect to Wilfred Bog, Lot 7, Con XI, Brock Township

This mature evergreen forest and ground water recharge area is threatened with destruction by peat extraction. The Nature Conservancy objects to re-zoning for the following reasons:

1. The subject property was designated a biologically significant area by the IBP (International Biological Program) in 1972, due to the high quality relict plant community now rare in Southern Ontario — a forest of mature spruce, pine, and cedar, with a ground flora of orchids, heaths, and other species of a locally vanishing heritage.

2. This land is designated in the Official Plan of Durham Region as an Environmental Protection Zone. Section 1.2.2 of the Official Plan states:

“Regional Council staff endeavour to retain in a natural state wherever possible all marshes, swamps, bogs and water recharge or head water areas and environmentally sensitive areas and shall not permit development which would result in damage to these natural areas.”

Peat extraction, as clearly indicated in the operation by Pefferlaw Peat to the north, would result in destruction of the hydrological and natural values of Wilfred Bog.

3. The South Lake Simcoe Conservation Authority, a public agency responsible for good water management in its area of jurisdiction, has requested Durham Region to retain Wilfred Bog in the Environmental Protection Zone.

4. The Ministry of Natural Resources has also objected to any change of zoning through the Municipality of Brock, for reasons outlined above.

5. The Federation of Ontario Naturalists objects to zoning change, as outlined in communications with the Durham Region and the Township of Brock, also for reasons outlined above.

6. The Nature Conservancy of Canada has also registered objections to zoning change in letters to the Ministry of Natural Resources, Maple District, and to Durham Region.

7. We note that a small area of coniferous forest has been cleared, perhaps to create the appearance of a presently existing use. This would allow, under Section 16.6.5 of the Official Plan, the Municipality to zone for existing uses even if contrary to the Official Plan.

We hold that no such use exists, and to allow re-zoning under this section could invalidate the Official Plan anywhere in the Region.

The Township of Brock, which unanimously voted for by-law 414-80-PI., allowing peat extraction, may claim that existing use has been established. We suggest such is not the case.

Wilfred Bog provides a vital public service through its biological and hydrological functions. To destroy it through deforestation and peat extraction would be contrary to public interest, the Official Plan, and the environmental well-being of Ontario.

This vital headwater source must be protected.



M.D. KIRK

FIGURE 28 CASE HISTORY — WILFRED BOG

Wilfred Bog is a mature spruce-tamarack bog near Cannington which acts as a water recharge source for the clear streams flowing into Lake Simcoe. The bog is cherished by naturalists who visit the orchids and northern nesting birds in a regionally rare habitat. Fortunately, the Durham Region Official Plan recognized the bog's ecological value and designated it Environmental Protection, thereby prohibiting incompatible development.

In 1980 the owner, a peat extractor who had previously stripped the northern portion of the bog, sought a zoning change through the Ontario Municipal Board (OMB) for the 27 hectares of remaining bog. Intervenors at the hearing included many of Ontario's environmental groups — the South Lake Simcoe Conservation Authority, the Federation of Ontario Naturalists, the Nature Conservancy of Canada, regional planners and adjoining residents.

In the face of well-organized and well-prepared opposition armed with good courtroom evidence, the OMB decided to retain the present zoning.

PREPARATION FOR BOARD HEARING:

As with the municipal process, the better prepared you are for the OMB hearing, the better your chances for being successful. It is very important for the appellant to identify exactly what he or she finds objectionable about the by-law. That is, is it the proposed use itself, or the location of the use on the site, or the lack of amenities being included in the proposal? Could servicing agreements, park dedications or site location requirements result in withdrawal of the objection? You should establish for yourself whether or not there are any possible compromises or if your position is against the entire proposal.

There are a number of matters to be considered when assessing the appropriateness of a particular proposal. Evidence regarding these matters is given the most weight by the OMB when making its decision. A list of these matters is presented in the Planning Act:

1. Is the proposal a matter of provincial interest?
2. Is the proposal premature or does the need for the use exist now?
3. Is the land suitable for the development?
4. Does the proposal conform with the Official Plan?
5. Are the services and utilities adequate for the proposal?
6. Are the dimensions and shape of the property appropriate for the proposal?
7. Are there any restrictions that the proposed development may place on adjoining property?
8. Is the proposal in keeping with the conservation of natural resources and flood control?
9. Is the layout of the proposal appropriate with respect to energy conservation?

Most Official Plans contain a section outlining the basis for considering an amendment and these policies should be discussed.

Experts may be retained to give evidence concerning any of the above matters. Any such experts who are not willing to give evidence may be subpoenaed to do so. Retaining a lawyer is not necessary, but can be helpful, particularly for the cross-examination of witnesses called by other parties. If a lawyer is retained, it is important to hire one that has OMB experience because the forum and procedure of an OMB hearing are quite different from that of other legal proceedings.

THE BOARD HEARING:

Once the OMB has determined that a hearing will be held, the municipality's Clerk is notified of the date, time, location and to whom and in what manner notification of the hearing is to be given. The Board will appoint one of its members (occasionally two members are appointed) to chair the hearing. The appointed board member travels to the local municipality for the hearing, where quite often the Council Chambers in the municipal office is used.

The Clerk usually enters the hearing in advance of the OMB member and calls the hearing to order. At this time, everyone in the room should stand until the member has taken his seat and instructs the audience to be seated.

The first order of business is the submission of affidavits by the municipality establishing that all notice requirements, as prescribed by the OMB, have been complied with. Following this, the Board member will decide who is to begin. Quite often it is decided that the municipality should go first since it is a municipal by-law that is in question. The benefit of this approach is that it allows all of the introductory information to be presented at the outset of the hearing. However, occasionally, it is decided to let the appellants begin and establish why they are opposed to the proposed by-law.

The issues should be specific in either case, and it is important to remember that at the hearing the entire process begins all over again. All of the information that was discussed amongst the various parties previously must be re-introduced at the hearing, since the Board will only consider evidence submitted to it. The purpose of the hearing is to render a decision regarding the appropriateness of the proposal and not to assess how the Municipal Council has performed to date. This is an important point to remember when selecting pertinent evidence.

Whichever party is to begin will do so by calling its first witness. As in any court of law, all witnesses are required to take an oath. If the witness is an "expert," the individual's level of expertise should be established by presenting all relevant qualifications and related experience. Once the witness' qualifications have been established, the witness is examined, that is questioned by someone, often a lawyer, who is on the same side. The evidence presented must be confined to facts and expert opinion. When the examination is complete, the opposition may cross-examine. Following cross-examination, the witness may be re-examined on new matters which surfaced during the previous cross-examination. The Board member may interject at any time and ask questions of either the witness or the examiner. This process of examination, cross-examination and re-examination continues for each of the witnesses until all parties involved have called all of their witnesses.

Exhibits, such as aerial photographs of the property affected by the development, or studies or reports related to the proposal, may be submitted to support or enhance evidence. Exhibits are often more convincing than oral testimony.

Some expert witnesses from government staffs will only testify if served with a subpoena. A letter from your lawyer will usually suffice, but if rejected, the OMB can order attendance to testify. A subpoenaed witness is bound by oath to give his honest opinion and all the facts, and thus would be less intimidated if the issue is charged with political pressures.

When all of the exhibits have been submitted and all the witnesses have completed their evidence, each side presents their final argument. It is during argument that the discussion can stray away from facts and expert opinions, concentrate on logical analyses of the facts, and draw conclusions. Be sure to enumerate facts and opinions, and draw them together, to counter opponent's views. Request a certain decision. Once the argument has been submitted, all that remains is the Board's decision.

The Board member has the option of presenting an oral decision at the end of the hearing or submitting a written decision at a later date. If a written decision is rendered, it is sent to the Municipal Clerk and to all other parties who request a copy of the decision at the hearing. In its decision, the Board has the power to uphold the appeal, dismiss the appeal or dismiss the appeal in part, whereby the Board may amend the By-law or order the municipality to amend the By-law. The decision of the OMB is final and there is no longer any avenue to appeal the decision. The only exception to this rule is where an appeal to a By-law or the Official Plan has come from the Minister of Municipal Affairs and Housing and is based on a matter of provincial interest.

At this point, the only last-ditch stand available to the defenders of a natural area is to convince the Minister (or his colleagues in Cabinet) that the issue is of provincial interest, so that the Minister can lodge an appeal to the OMB. Heritage guardians should be trying to convince the Provincial government that protection of wetlands, rare species, and natural areas should come under the umbrella of formal Provincial Interest designation in the new Planning Act.

Participation in an OMB hearing is often expensive, frustrating, and time-consuming. Despite gradual improvements in environmental policies at both the provincial and municipal levels, the record of success in defending natural areas at the OMB is not good. On some issues, the confrontational setting of a formal hearing cannot be avoided, but for most areas, the OMB should be seen as a last resort. Early and consistent participation in the planning process, and the building of understanding among landowners and municipal councils, is far more likely to gain eventual success.

As well, it is important in any stage of the planning process that you deal with issues openly and fairly. Winning one battle at the OMB may not be worth the price if along the way you alienate the owners of natural areas or a sympathetic Council. Your actions should be presented in such a way that they will build community support for nature protection rather than destroy it.

LAND USE PLANNING ON CROWN LAND

R. Reid and T. Moull

The entire concept of natural heritage protection on Crown lands must be viewed in a different light from private lands. Crown lands are owned by the federal or provincial governments, including parks and vast areas of northern Ontario. They are outside the realm of municipal planning and the provisions of the Planning Act and instead are controlled by a variety of legislative tools and regulations dealing with resource conservation and use. Public input on Crown land decisions takes place in a different forum, generally with a less formal structure and less opportunity for public participation.

The right to manage land stems from the British North America Act, renamed the Constitution Act in 1981 and amended by the Canada Act the following year. This Act specifies that the provinces have the right to make laws controlling the development, conservation and management of various natural resources. Only where federal lands or designated federal responsibilities such as lands reserved for Indians are involved, does the federal government play a direct role. Most decisions affecting natural heritage protection on Crown lands are therefore provincial.

Protection of the natural heritage on the approximately 90% of Ontario that is Crown land involves several facets. First, we can look at the protection of the environmental quality of the general landscape, recognizing that much of that land is already being used by economic interests, from wilderness outfitters to loggers and miners. To the casual observer, the reaches of northern Ontario may appear a sea of green, but this array of uses already competes actively for a limited land base. The forest industry, for example, cuts close to 200,000 hectares of forest every year for its needs.

Second, within that sea of green there are specially designated areas, selected for their natural or recreational significance, which warrant stricter protection measures. The designation and management of these areas is of special interest. Because of the relatively simple and vulnerable ecosystems of the north, viable protected areas there are often on a much larger scale than in the private lands of the south.

This chapter looks mostly at these designated areas and how the public can influence their selection and management. But it also covers ways in which heritage protection can be encouraged within the broader mosaic of Crown land uses in general.

PROTECTED AREAS ON FEDERAL LANDS

The most important federal legislation for protection of outstanding natural areas is the National Parks Act, administered by Environment Canada. Parks Canada has established a policy under that Act "to preserve for all time areas that contain significant geographical, biological or historic features as a natural heritage for the benefit, education and enjoyment of the people of Canada."

National parks are often considered the strongest form of heritage protection since their boundaries are established by a special Act of Parliament and thus are difficult to arbitrarily change. As well, park features are managed according to a detailed set of policies, established after public consultation and a series of specific regulations.

Currently, Ontario has four national parks — Point Pelee, Georgian Bay Islands, St. Lawrence Islands and Pukaskwa. Only the latter is of large size, including 80 km of Lake Superior shoreline and a substantial wilderness area. A fifth park is proposed on the upper Bruce Peninsula.

Parks Canada has an objective of creating a system of protected areas representing each of 39 natural regions and 9 marine regions across the country. Within each of those regions, detailed studies compare the best remaining natural areas, but decisions on actual establishment of a national park are as much political as technical. The province must approve any national park proposals and make available the necessary land. Public consultation on park establishment and management is extensive when Parks Canada puts forward a suggested area.

Parks Canada is also involved in cooperative arrangements to encourage heritage protection without actual ownership of land. One such program is the Canadian Heritage Rivers System, which recognizes waterways of national significance, even though they may be owned by the province or even private landowners. The Missinaibi and French Rivers in northern Ontario have been nominated under this program. Individuals or groups can propose that rivers be added, although a federal-provincial committee must recommend formal designation.

Another federal agency, the Canadian Wildlife Service, has also become involved in a limited way with protection of natural areas under the Canada Wildlife Act. Most of their focus in Ontario has been on habitat for migratory waterfowl, with acquisitions at Long Point, Lake St. Clair and Wye Marsh in Simcoe County. In recent years, budget cuts have curtailed this part of their program.

PLANNING UNDER THE PUBLIC LANDS ACT IN ONTARIO

Almost nine-tenths of Ontario is owned by the province and managed on its behalf by the Ministry of Natural Resources. This Ministry administers over 50 statutes, many of which influence the activities that take place on Crown land. Some, such as the Crown Timber Act, the Mining Act and the Provincial Parks Act, relate to specific aspects of land management. The Public Lands Act, however, is a more comprehensive piece of legislation, providing a complex variety of options for the control of Crown lands.

Essentially, this Act is the northern Ontario equivalent of the Planning Act. It enables the Minister to zone areas of Crown land as open, deferred, or closed for management purposes. He may also designate restricted areas, where permits are required for any sort of development. Under this Act, the Ministry not only controls the use of land when it is publicly owned, but also the process of its disposition and even the uses of private lands in areas without municipal organization.

Unfortunately, unlike the Planning Act, the Public Lands Act does not require public involvement in planning decisions and there is no formal mechanism for appeal equivalent to the OMB. However, beginning in the early 1970's, the Ministry began to consult the public through the Strategic Land Use Planning (SLUP) process.

The SLUP process was a response to increased competition for Ontario's land base. As more of the accessible areas became committed to timber extraction or other resource uses and as recreational and protection demands rose, a more integrated approach to resource management was clearly necessary. SLUP was intended to accommodate as many of the multiple uses of the northern landscape as possible and to resolve conflicts where they occurred. As well, SLUP identified more clearly the Ministry's role in southern Ontario, where its involvement in the municipal land use planning process is less direct.

The Ministry's land use planning program, which continues even though the initial SLUP process is completed, has five objectives:

- to provide a comprehensive inventory of Ontario's resources and their potential for development
- to identify and maintain opportunities for economic and social development
- to provide a means of testing the feasibility of achieving desired resource management targets and to reconcile those targets when they conflict
- to provide a forum for public comment on the Ministry's land use proposals and to facilitate public involvement in the process of resource development

- to provide guidelines for integrated resource management that will help achieve policy objectives and minimize related difficulties

The SLUP process was a hierarchical one, with targets for various resources (such as timber production, recreational facilities, park representation) set provincially and applied in three broad regions and then more specific land use designations applied at the Ministry District level. The end result, released in 1983, was a series of District Land Use Guidelines, publicly available from any District office.

SLUP also incorporated the results of a separate planning exercise for additional provincial parks, resulting in a commitment to create 155 new parks. While the public consultation process was protracted and often confused, SLUP did provide the first real opportunity for general comment on the Ministry's management. Over 10,000 briefs were received during the process, along with many other less formal comments.

This public consultation will be continued during the application of the Guidelines to Crown land management. If you have concerns about a specific natural area, you should first check to find its designation within the appropriate District Land Use Guideline and review the policies applying to that zone. You should also contact the District Manager (addresses listed in Appendix B) to let him know of your concern and to ask to be notified of any opportunity for input in the future.

All of the District Land Use Guidelines will be reviewed in some manner at their five-year mark, which is 1988 for most. Some opportunity for public consultation will be available then. As well, any amendments to the Guidelines must follow a similar process to the approval of the original plans, again involving public notification and participation.

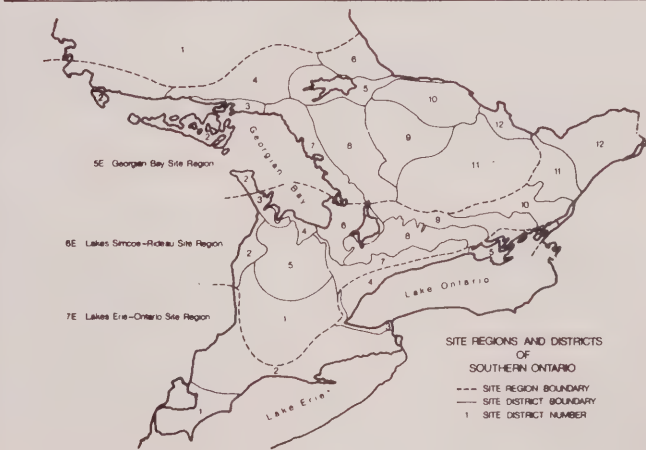
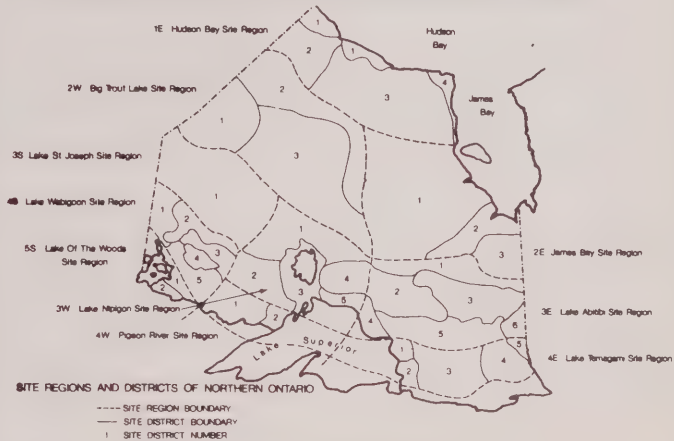
THE ROLE OF PROVINCIAL PARKS

One of the primary means for protection of the natural heritage of Crown lands has been through the establishment of provincial parks. Since the creation of the earliest parks, Rondeau and Algonquin, in the 1890's these areas have been dedicated to the twin goals of recreation and protection. With the adoption of a formal parks policy in 1978, the Ministry expanded those objectives to include objectives relating to tourism and heritage appreciation as well.

Ontario is one of the few jurisdictions in North America that develops its system of parks on an organized basis. The starting point for Ontario's system is a division of the landscape into site regions and districts, based on differences in vegetation, climate and soils. This division, which is shown in Figure 29, was first developed by G. Angus Hills in 1959. Park planners are attempting to achieve representation of life science values within each of these 63 site districts, using a complex matrix to identify the range of ecological conditions within each.

FIGURE 29

Site Regions & Districts of Northern and Southern Ontario



From Ministry of Natural Resources, Parks Branch.

Representation of the earth science theme is based on the full range of features which illustrate Ontario's earth science history. In general terms, these features include rock strata, fossil assemblages and landforms. These are organized into a series of 33 ancient and 9 recent environments. Planners look for representation of features characteristic of each. The rationale for both earth and life science representation in a system of protected areas is more fully explained by Beechey and Davidson in *Protection of Natural Areas in Ontario* (Barrett and Riley, 1980).

Not all provincial parks are treated in the same way. The parks system has been divided into six classes, from wilderness to recreation, with the wilderness and nature reserve classes especially important for natural heritage protection. The 1978 Ontario Provincial Parks Planning and Management Policies contained a detailed set of policies for control of activities within each type of park, but these policies now are regarded as guidelines, with more room for compromise to meet individual situations. However, the six park classes still retain their original focus.

Within individual parks, a series of zones is used to balance the mix of recreation and protection activities that often occur. Nature reserve zones, for example, can be used to highlight outstanding features for special protection or management. These zones within parks also help to meet the targets set for earth and life science representation. While they can occur in any park, nature reserve and wilderness zones are more commonly found in the more protective classes of parks.

Wilderness parks are defined as "substantial areas where the forces of nature are permitted to function freely and where visitors travel by non-mechanical means and experience expansive solitude, challenge and personal integration with nature." By definition, then, these parks are large and relatively undisturbed and provide a high degree of protection for natural features. There are presently 8 wilderness parks in Ontario, covering some 4 million hectares, about two-thirds the area of all provincial parks. Some of these areas are extremely remote, such as Polar Bear Provincial Park on the shores of Hudson Bay.

Nature Reserves are selected to represent the distinctive natural habitats and landforms of the province, for educational purposes and as gene pools for research. While these parks are often relatively small, their emphasis is on protection, with few recreational activities encouraged. Nature Reserves are Ontario's equivalent to ecological reserves in other Canadian jurisdictions, and the approach to ecosystem representation described above is particularly important in their selection. Although the SLUP process added 74 nature reserve candidates to the previous total of 13, many parts of the province are still not adequately represented.

Natural Environment Parks incorporate outstanding recreational landscapes with representative natural features and historical resources. These multi-

use parks, such as Algonquin, support more intensive recreational use than wilderness parks. Through wilderness and nature reserve zones, they do provide protection for specific significant features, as well as the more general protection provided by the park boundaries.

Waterway parks are similar, but extend in corridors along river courses. As well as protecting the biologically-significant river edge, these parks often include associated natural areas extending back from the shore. While the narrowness of waterway parks minimizes conflicts with other resource users, their linear nature often brings about conflicts over road crossings to serve these other users.

Historical and Recreational parks, as their names suggest, are oriented more to specific features of human interest rather than nature preservation. However, significant natural areas are often included in appropriate zones even within these classes of parks.

Because the parks target was not achieved through the SLUP process and because the inventory of natural areas was not complete across the north, proposals for further protective parks should be forthcoming at some point in the future especially in northeastern Ontario. Since these proposals would be treated as amendments to the District Land Use Guidelines, or part of their review process, there will be an opportunity for public comment on their merits. Initiating the protection of a natural area as a provincial park is likely to be more difficult. Such public submissions would not likely be treated seriously unless they happened to meet the Ministry's representation objectives, or had broad public support.

In established parks, the preparation of a management plan provides an opportunity for public comment, during which the degree of heritage protection can be examined. Each of these plans also has a periodic review. The Provincial Parks Council, which advises the Minister on parks matters, has often been involved in the public review of contentious management issues.

AREAS OF NATURAL AND SCIENTIFIC INTEREST

A policy for Areas of Natural and Scientific Interest (ANSI's) was approved in 1983 as part of the SLUP process. This policy defines ANSI's as "land or water containing natural landscapes or features which have been identified as having values related to protection, natural heritage appreciation, scientific study, or education."

Some 600 ANSI's were identified across Ontario, both on Crown and private land. Many are areas originally proposed as nature reserve parks, but rejected for that status for a variety of reasons. However, it is hoped that at least partial protection of these areas, to fulfill the life and earth science targets, can be achieved through ANSI designation. Ministry policy directs that the values identified for individual ANSI's on public land will be protected, through specific mechanisms developed under that general policy. On private lands, cooperative techniques described elsewhere in this manual will be used to encourage protection.

Since the data base for representation of earth and life science features is not yet complete, the present roster of ANSI's is not considered final. Additional areas could be proposed by citizens or other agencies, but would have to be approved by MNR staff.

PLANNING FOR TIMBER MANAGEMENT

Industrial forestry is the major land-user of Ontario Crown land, with licensed areas covering most of the accessible parts of the north. This activity is controlled under the Crown Timber Act, which provides for forest planning and management, as well as the granting of rights for harvest and other activities to individual companies.

Because of the scale of forestry operations and the kinds of impacts associated with clearcuts and access roads, this activity can have great influence on natural areas. In recent years, several new policies have addressed the questions of natural heritage protection during forestry operations, as well as public involvement in the planning process.

Crown land within the productive forest zone is divided into a quiltwork of forest management units of varying sizes and configurations. Some of these units are managed directly by the Ministry and are known as Crown management units. Others, including the majority of the area, have been assigned under long-term license to a specific company, who is responsible for preparation of management plans. Since 1979, these company management units have been gradually converted to Forest Management Agreements (FMA's), with the companies assuming a greater role in forest renewal.

The Ministry of Natural Resources gives notice in the local area when new FMA's are about to be created. This could be an important step for natural areas, since each FMA identifies a number of exclusions, or lands permanently alienated from timber production. These exclusions could include parks and park reserves and perhaps other significant natural areas as well.

Individual FMA's also contain clauses allowing for the withdrawal of lands in the future for non-forestry uses, initially through designation of no-cut zones known as "reserves". Normally there is a ceiling of 5% of the FMA area on these withdrawals, after which the Ministry must compensate the company. While this could allow for the future protection of a significant natural area, this provision has not yet been tested.

Within any of the forest management units (Crown, company or FMA), a timber management plan must be completed every five years. As well as documenting objectives, calculation of the annual cut allowed to achieve sustained yield and general silvicultural systems, this plan includes a 20-year projection of areas for harvest, the type and location of access and identification of areas of concern. A five-year plan of operations provides a more detailed look at the same subjects for the first areas affected.

During the preparation of these plans, there are opportunities for review and input by anyone likely to be concerned. Since the location of roads and harvest areas can be crucial to the fate of natural areas, if you are concerned about specific areas, write to the MNR District Manager about the status of planning for forest operations in that area and ask to be put on their list for notification.

As part of the preparation of timber management plans, forest managers or members of the public can identify "Areas of Concern", which might include important wildlife habitats, fragile sites, recreational and scenic sites and special management areas such as seed collection plots. In some cases, these areas will not be cut at all; in others, special management techniques will be prescribed to ensure that their values are protected. The public is consulted during the development of these special management directives.

Thus, for the citizen concerned with protection of natural areas, the main focus during review of forestry plans might be these Areas of Concern. Are they in the right places and large enough to be effective? Will the operations proposed actually protect the natural values of the sites? Are there additional areas which should be treated in a special way?

A valuable source of information on the complex steps involved in forest management is the *Class Environmental Assessment for Timber Management on Crown lands in Ontario*, prepared by the Ministry of Natural Resources and submitted for review December 31, 1985 to the Ministry of the Environment. This document also includes the relevant policies and a summary of the planning schedule for each management unit.

Clearly, the planning process at a number of stages can have a dramatic influence on the protection or degradation of natural areas on Crown land. Since Crown land is owned and managed on behalf of all of us, protection of our natural heritage should come more easily than on the private lands of the south. Because of the diverse array of economic interests on Crown land, however, and the patchwork nature of the planning process, in reality only a concerned and vigilant public can ensure that natural heritage protection remains a priority.



MINISTRY OF NATURAL RESOURCES

FIGURE 30

CASE HISTORY — LADY EVELYN/SMOOTHWATER

As early as the 1940's, proposals had surfaced for a wilderness park in Lady Evelyn country, an attractive mosaic of lakes and pine forests just north of Temagami. Canoeists had been making use of the area for decades. In the 1960's the Lady Evelyn River, which runs through the heart of the area, was declared a Wild River Park. In the adjacent uplands, renewed logging operations and new roads seemed to seal the fate of the wild country.

But two external events disturbed the normal pattern of resource development. First, a government-sponsored proposal to develop a major recreational complex on Maple Mountain, next to Lady Evelyn Lake, stirred local Indian bands and conservationists into action. Second, the systematic approach to parks planning within the Ministry of Natural Resources identified this area as the best wilderness candidate in that site region. With the resort proposal stopped by native land claims and local opposition, conservationists were looking for a means to ensure that the area would remain undisturbed. Local wilderness users formed the Alliance for the Lady Evelyn Wilderness and called on provincial and national conservation groups for help.

When a wilderness park was included as one option in the MNR draft plan for Temagami District, both local loggers and the Alliance put forward strong arguments. MNR eventually compromised, creating a 72,000 hectare wilderness class park, but allowing hunting, trapping, mineral exploration and the existing road to remain. This compromise resolution is typical of the decisions made on many controversial park proposals across northern Ontario.

STEWARDSHIP PLANNING

S. Hilts and B. Pattison

The main thrust of this manual has been to discuss methods for the protection of natural areas, but the good management and stewardship of such areas after they are secure is also vitally important. While the most common idea may simply be to 'leave it alone', this is often not enough, particularly if many visitors are attracted to a site.

This chapter presents a brief discussion of appropriate principles for stewardship of natural areas. This is divided into sections dealing first with public properties designated as nature reserves, and secondly with the private stewardship of natural areas.

MANAGING PUBLIC NATURE RESERVES:

When natural areas are owned by a public agency, or even a non-profit group such as the Federation of Ontario Naturalists, the question of stewardship becomes complex for two reasons. First, visitors to the property are eventually likely to need some form of control. Second, institutional arrangements within such agencies require formal decision-making mechanisms, rather than the personal decisions that individual landowners can make.

Basically, the management or stewardship of nature reserves is just a special case of 'Design With Nature' (Figure 24). Decisions are based on environmental inventories, and an evaluation of sensitivity compared to expected use. Management techniques are adopted accordingly. These may include zoning of the reserve into different use areas, design of trails, construction of boardwalks, and so on. Such a process is typical of management in Ontario's provincial nature reserve parks for example.

Nature reserves may at first seem to require little active management, but two problems often interfere with this. First, there may be conflicting demands for use of the land, such as hunting, lumbering, or even recreation, which on fragile environments can quickly lead to deterioration. It may be necessary to make basic decisions on whether such activities will be allowed, or under what conditions.

Even without the question of conflicting uses, there may be important management decisions to be made. For example some species or communities represent one particular successional stage, or require periodic natural events such as fire in order to maintain themselves. In these cases 'leaving it alone'

means that a nature reserve may eventually lose the significant features it was established to protect just through natural succession. In cases such as these deliberate management may be necessary.

Stone Road Alvar on Pelee Island is a case in point. The newest nature reserve of the Federation of Ontario Naturalists, this reserve contains prairie species which may be crowded out by growing shrubs and trees if not carefully managed. The type of stewardship which is necessary in this case is now being evaluated. In this and many other cases biologists are recognizing that a 'hands off' management policy is not enough; active management of nature reserves is going to be increasingly necessary in many cases (Bratton and White, 1980).

It is useful to establish a set of basic principles as guidelines for the management of natural areas. It should be kept in mind that there is no one right way to manage natural areas, but following these principles can enhance long term protection.

1. **Purpose or Goal:** The purpose for protecting and managing a particular natural area should be made clear.

2. **Objectives:** Management should be guided by clear and specific objectives.

3. **Actions:** Every proposed management action should be evaluated for its potential contribution to the achievement of a specific objective.

4. **Context:** Natural areas must be managed as a component of the surrounding landscape, not in isolation.

5. **Focus:** Management should focus on the interrelationships throughout the ecosystem wherever possible rather than on particular features or parts.

6. **Diversity:** The contribution of management to protection of the full range of natural features and habitats should be recognized.

7. **Manipulation:** If there is serious doubt about the need or appropriate techniques for ecosystem manipulation, then none should take place.

8. **Use:** Monitoring and management of human use and its impacts is necessary to adequately protect natural areas. Only the minimum regulation necessary to achieve management objectives should be applied and where possible, management of use should be positive rather than negative, and indirect rather than direct.



ONTARIO HERITAGE FOUNDATION

FIGURE 31

CASE HISTORY — DORION TOWNSHIP

Dr. Gaeten Harvais of Lakehead University dedicated his scientific career to the study of orchids, particularly those in Northern Ontario. One of his discoveries was a research plot on a small section of Crown land in Dorion Township, northeast of Thunder Bay. This contained one of only two known populations of Showy Lady's Slipper orchids in northwestern Ontario. Dr. Harvais actively managed this colony, clearing away brush that would crowd out the flowers, fertilizing and propagating. In his estate, he left a sizeable bequest to ensure that this specialized conservation work could be carried on.

The Ontario Heritage Foundation received the bequest in 1985 and is developing a cooperative working relationship with the Ministry of Natural Resources to ensure the protection of the site. While such an arrangement on Crown Land is unusual, it does illustrate the potential of individual efforts to assure long-term protection of significant natural heritage sites in that setting.

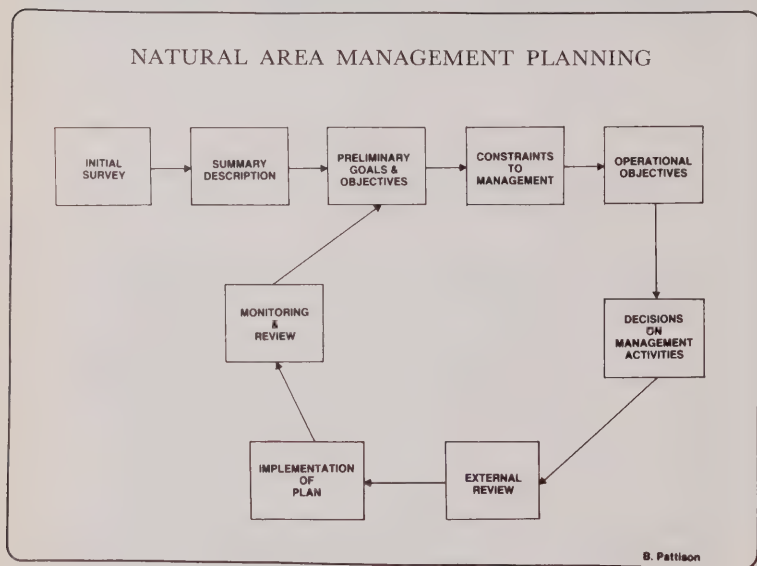
9. **Education:** Public education and interpretive programs which create ecological awareness are important components of the management of human use.

10. **Ecological Data:** Management of a natural area should be based on the best ecological data available.

11. **Research:** Research directed at, or potentially useful for, management of natural areas in accordance with stated objectives should be given top priority when deciding what research activities to allow.

The application of these principles occurs within a process of stewardship or management planning, as illustrated in Figure 32.

FIGURE 32



The first major requirement for formal management is information. Management planning is not possible without detailed information on two major questions — the biophysical characteristics of the property, and the patterns of use that it receives or is likely to receive. Gathering such information may be the single largest cost and time commitment in developing a management plan.

The collection of biophysical data has already been discussed in Chapter 3, but for management purposes, more detailed studies may be required. If rare species of plants or wildlife are involved, where do they occur within the property? Do they have special habitat needs, such as degree of shade, moisture, or nutrient levels? If it is a particular community that is under protection, such as an old-growth woodland, how will it change over time? Can you predict, from a study of the pattern of regeneration, whether the same species composition will be maintained?

In answering questions such as these, it is important to guard against information overkill. All too often the collection of endless reams of data becomes an expensive end in itself, and is used as an excuse for postponing management decisions. As two American authors wrote, "we need to realize that the academic tendency toward infinite data collection is a severe burden to management" (Bratton and White, 1980, 65). A sound inventory program, concentrating on the most essential information needs can be established by relating it to a clear statement of objectives for the reserve.

On the social side, the numbers of visitors, times of visits, and exact activities undertaken by visitors on the property are all important facts. Do visitors include nature photographers hunting for 'trophy' slides of rare species? Hikers out for a casual stroll? Local residents who have always held picnics on the beach? How many come, at what season, and what time of the week? What information is going to be provided for them, and what facilities are necessary?

The Dorcas Bay Nature Reserve of the Federation of Ontario Naturalists provides a good example of these social factors. Over the two decades it has been owned, over-use has become a growing problem, but accounts of the problem were personal and anecdotal. In order to study the actual patterns of use, a warden was stationed on the reserve in 1983. The findings were quite specific. While some general use does occur over the entire summer, most problems were caused specifically during June weekends by overzealous nature photographers. This over-use is having an impact on a fairly small area of the property, and on two species in particular, the Showy Lady's Slipper and the Ram's Head Orchid.

Knowing such details it is possible for more appropriate management planning to be undertaken. Close liaison with nature photography clubs and control over large group tours of the reserve are the top priorities. Restrictions on casual users of the nearby beach do not appear to be necessary. The inventory of natural features, and the analysis of each for expected uses has led naturally to management actions.

The second, and most critical element of stewardship planning is a clear statement of goals and objectives. Is the primary use education, recreation, or conservation? Is the general vegetation community or landform the most significant element, or is an individual rare species of primary concern? Some

basic statement of these ideas should become a reference point, even before an area is purchased. It will then provide an essential policy statement for later decisions.

Once information on the physical and biological features and patterns of human use is known and analyzed, the decision-making process can begin. It is necessary, through whatever expertise can be brought to bear on the case, to decide on actions which can be part of a management strategy. In some cases this will simply mean leaving an area alone, perhaps providing a fence and a simple sign and little more. On the biological side, this is probably the most appropriate plan in most cases.

Many sites will require a little more, especially in the area of visitor management. Trails, washrooms, parking space, and information may be necessary. Perhaps a trail guide or other interpretive pamphlet will be provided to enhance the visitor's appreciation. Trails can be routed to avoid and protect sensitive features, or to take in scenic areas and thus enhance visitor experience. At some level of use, staff on the site may be necessary. At this point we begin to move beyond the level of this discussion, into the realm of more sophisticated park management.

This relationship between objectives for a nature reserve and the management plan is a very important one, for it serves to sort out many of the specific decisions which must be made. As an example, a list of possible objectives for the Dorcas Bay nature reserve together with specific management activities related to each is given in Figure 34. It should be noted that not all of these have been adopted as policy in this case; Dorcas Bay is considered as a case study in Figure 33.

The concept of zoning within a managed natural area is often a useful tool, especially for sites over 40 hectares in size. The most sensitive sites can be zoned for minimal use, or specific management actions if necessary. Access and recreation zones, where appropriate, can help to direct visitor use. Within each zone, a list of permitted or prohibited activities can help to ensure that there is a clear understanding of their intent. The management guidelines for ecological areas produced recently by the Canadian Council on Ecological Areas (1985) discuss types of zones which might be applied, as does the document *Ontario Provincial Parks: Planning and Management Policies* (Parks and Recreational Areas Branch, 1978).

Both of these reports also emphasize another dimension of management planning in nature reserves, the question of permitted uses. In most cases such activities as logging, mining, grazing, and motorized vehicle use are clearly inappropriate. Hunting, fishing and trapping are inappropriate in strictly controlled reserves, but in other cases may be appropriate as recognized traditional uses, or to control wildlife populations. Recreational use also requires careful evaluation, for it can sometimes cause serious damage, especially when concentrated in a small area which coincides with the location of rare species.

In most cases, some formal series of steps should be followed in developing a management plan, as outlined generally in Figure 32. Implementation of plans requiring active management usually involves commitment of staff or volunteer time and funds, and obviously requires formal approval. At the other end, management planning is ideally an ongoing process, since as environmental and use patterns change, adjustments may be necessary. The steps involved will vary with the organization, but the commitment of an individual or small group is the key to seeing a management plan through to implementation.

In any case, sensitive visitor management is essential, both to protect the property, and to build an appreciation of our natural heritage among those who visit.

Biological management problems can be lessened by paying careful attention to designing the original boundaries of the reserve. There is an interesting scientific literature dealing with 'island biogeography' which suggests several principles to take into account. For example, larger reserves are better for protecting most species than small; connected sites are better than 'islands'; square or circular sites are better than long linear ones (Diamond, 1975). Continued monitoring of rare species is also an essential component of management (Davy and Jeffries, 1981).

In a few cases naturalists are actually now practicing restoration of ecosystems. This is particularly true in the midwest prairie states and in Great Britain, but some interesting projects have been undertaken in Ontario. As reclamation of gravel pits becomes more routine, there will certainly be opportunities to create interesting natural areas in the process. Some of the most startling examples of this are in the City of London, England, where small nature reserve parks have been created from scratch on old industrial sites at great expense.

Mention should also be made of management planning on Crown land, as discussed in Chapter 8. While in this case the primary goal will often be production of resource products such as pulp and paper, protection of natural areas can be a secondary objective. In this case protection is achieved through the internal planning of the Ministry of Natural Resources, or through incorporation of areas of concern in forestry plans.

PROPERTIES UNDER PRIVATE STEWARDSHIP:

While a number of natural areas will end up as formal parks or nature reserves of some type, probably the majority will remain in private stewardship. As has been argued earlier in this book, appropriate stewardship by private landowners is also an excellent means of protecting natural areas. Among the many natural heritage sites that have been designated as provincially significant, only a few are apt to be changed in a substantial way in the immediate future. While a landowner contact program can identify those where some further action may be necessary, in most cases, the encouragement of continued good private stewardship is all that is required.

But just what is involved in good private stewardship of natural areas? In general, the same principles which have been discussed above still apply. However, the process will be a much less formal one. Rarely will a landowner prepare an actual stewardship plan for his property. Nevertheless, there are several important points that can be made for these cases.

Four major ideas might be mentioned. The first is simply learning more about an area and its natural heritage including the specific features or species which make it significant. A great deal can be accomplished by helping landowners learn these facts, though such education may be time-consuming. A walk in the woods at different seasons, field guides, and even binoculars may all help a landowner come to appreciate his woodlot a little more. In the case of rare or unusual species, some explanation by a qualified expert may help the landowner to appreciate its significance.

Such appreciation pays direct personal dividends. A great deal of personal satisfaction can be gained from studying and observing the natural world, by anyone who takes the time to do so. Nature provides thousands of intricate stories to be unravelled, including the deeper mysteries that science is only beginning to understand. It seems a lot to expect private landowners to appreciate our natural heritage if they have not had such personal experience. In the long run the number who do learn to observe nature will determine the overall success of efforts to preserve remnants of the natural world across the globe.

A second dimension to good private stewardship is simply leaving an area largely alone. No special management is usually required; it is simply necessary to avoid destructive activities. Even here there is no hard and fast line to tell which activities are appropriate. For example, cutting a little firewood, or removing hardwood logs on an occasional, truly sustained yield basis may be quite acceptable within some protected areas. In other areas, depending on the specific features needing protection, they should not occur. Such details must be worked out on a case by case basis.

The third dimension, appropriate in some cases, is active management. For example, it is possible to plant shrubs and undertake other simple activities such as building brush piles to attract wildlife. Birdhouses of all kinds can be erected; stream habitat can be improved in a variety of ways. In the case of some special rare species, management may improve habitat or main-

tain populations which would otherwise not survive. Expert advice should be sought before active management is undertaken, since it must be compatible with the protection objectives of the property. The wishes and enthusiasm of the landowner are also important factors to consider.

The fourth point is something that good stewardship does NOT involve, and that is public access. Private landowners should not have to associate natural heritage protection with problems of trespass and vandalism. While a variety of means exist to negotiate public access if desired, from a simple handshake to a formal legal agreement, in the vast majority of cases, no access of this sort will be either desirable or necessary. The question of allowing access should therefore be up to the landowner, and be quite separate from the practice of good private stewardship.

Those working for the greater appreciation of natural heritage often make the mistake of thinking that rural landowners are not sympathetic to such a goal, or that they do not appreciate natural ecosystems. Nothing could be further from the truth. The average owner of rural property likely knows his land very well, undoubtedly better than those who seek to 'keep it natural'. After talking to hundreds of such owners, we can say that many are very interested in natural areas, and learning more about them. Most will be pleased to allow those interested to wander through a farm woodlot, if asked. A major problem is that they are often not asked. Many also face economic pressures that influence their land use decisions. Nevertheless, rural landowners are perhaps the single most important component of efforts to protect natural heritage. Private stewardship is undoubtedly the means by which the great majority of the remnant areas our grandchildren will see will be preserved.

A wide variety of literature exists which may help the reader who is seriously interested in studying management or stewardship planning. Guides to management and interpretive planning published by University College, London are useful British examples (Beatty, 1978; Wood and Warren, 1978). Reports of the U.S. Audubon and Nature Conservancy organizations are also of value (Massachusetts Audubon Society, 1979; Nature Conservancy, 1978). Reference might also be made to the academic journals *Biological Conservation*, *Restoration and Management Notes*, and the *Journal of Natural Areas*.



M.D. KIRK

FIGURE 33

CASE HISTORY — DORCAS BAY

The bedrock of the Bruce Peninsula tilts downward and westward gently into the waters of Lake Huron. Numerous bays and inlets create wet sands and fens, cooled by constant seepage from the interior. This shoreline band nurtures a natural garden of such diversity and beauty that Sherwood Fox was inspired to call it the North American rendezvous of plants.

This shoreline is also most attractive for summer resort development, and most of the natural garden was doomed to diminish or disappear unless rescued.

Such was the case with the 132 hectare complex of coniferous forest, fen, sand dune and shore along Dorcas Bay. In 1962, the bulldozer was imminent, with development threatening such features as 16 species of orchids, Massasauga rattlesnakes and flocks of shorebirds. At the last minute, the Federation of Ontario Naturalists picked up the option for the property, publicized its cause through a Fred Bodsworth article in Maclean's magazine and raised \$30,000 to complete the purchase. The Dorcas Bay Nature Reserve is still owned by FON, which now must cope with the management problems of too many visitors.

In particular, the attractive wildflowers in the dune communities are under pressure from hundreds of photographers and consequent trampling in the vicinity. Many of the activities prescribed by the management plan are already in place, including a summer warden to help control use.

FIGURE 34

**OBJECTIVES AND MANAGEMENT ACTIVITIES
— DORCAS BAY NATURE RESERVE**

Operational Objectives

Prescribed Activity

**1. ENVIRONMENTAL
MANAGEMENT**

1.1 Species and Habitat Protection

To protect species and habitats of the reserve, particularly those considered by the Nature Reserves Committee to be rare, threatened or otherwise requiring special attention.

Maintain, and revise or update if warranted, the list of threatened floral species (as identified by 1984 warden, and revised or updated by Nature Reserves Committee).

To undertake baseline studies and ongoing monitoring of the reserve's flora and fauna and their habitat, with particular emphasis on those referred to in the Protection Objective.

Collect baseline hydrological data (water levels, inflow, outflow of fen) and monitor seasonally.

Undertake analysis of soils in each vegetation community.

Set up permanent control plots and permanent photographic reference points to determine effects of use on fen, dunes and forested areas.

Continue lists of vascular plants and lower plants.

Prepare lists of mammals, birds, herptiles.

2. PUBLIC USE

2.1 Scientific

To encourage scientific research which will contribute to knowledge of the reserve's natural features and functions and to the achievement of management objectives.

Inform appropriate university departments of research needs.

FIGURE 34 (continued)

2.2 Educational

To permit use of the reserve and to provide information which will contribute to the education of naturalists and other members of the public with respect to nature and ecological awareness.

Allow free access to the reserve, with the exception of requiring large groups to gain permission from the F.O.N.

Provide interpretive information through personal on-site contact when possible.

Provide interpretive information through a reserve guide brochure.

2.3 Recreational

To discourage or, if deemed necessary to achieve protection objectives, prohibit use of the reserve for purely recreational purposes which may be harmful to species and habitats.

Indicate permitted and prohibited uses through signage and printed material.

Control undesirable uses through the presence of one or more wardens throughout periods of heavy use.

2.4 Public Relations and Publicity

To maintain good relations with local residents and local authorities and to ensure that publicity is in keeping with protection and use objectives.

Provide local residents and authorities with printed reserve material and information on management efforts.

Minimize publicity; make use of F.O.N. publications (i.e. Seasons and Sanctuaries).

3. OPERATIONS

3.1 Plan Implementation

To ensure consistency and effectiveness in implementing this plan.

Keep an annual log book in which all incidences and efforts related to the reserve and its management will be recorded.

FIGURE 34 (continued)

3.2 Site Maintenance

To maintain the reserve and facilities in such a way as to minimize the risk of injury or mishap while ensuring achievement of preservation objectives.

Visit and survey the reserve weekly during the summer and several times over the rest of the year, recording maintenance needs in the log book and carrying out the necessary maintenance work.

3.3 Regulation

To control use of the reserve to the extent necessary to achieve protection objectives.

Manage use, where possible, through the presence of a reserve warden.

Develop trails to channel use away from sensitive areas and features, and to facilitate awareness and appreciation of some of the unseen portions of the reserve.

Contact photography clubs which visit the reserve and indicate what practices may be harmful to the reserve's features and how damage may be minimized; request that the F.O.N. be informed in advance of group visits.

3.4 Cooperation and Collaboration

To cooperate and collaborate, where appropriate, with other agencies in the management of the reserve and its surrounding landscape.

Communicate, on a regular basis, with other land management agencies to ensure mutual understanding and cooperation in management planning and implementation.

B. Pattison

CASE HISTORIES

M. Kirk

These examples of action to secure natural areas in Southern Ontario illustrate the wide variety of techniques and strategies that can be applied. Within this variety of strategies, financing, agencies (both public and private) and individual leadership, several general observations can be made:

1. A small citizen group or an individual usually triggers the activity and catalyzes others to join in the protection effort. History shows that citizens can make it happen, but usually in partnership with other public or private conservation agencies.
2. Where a natural area is threatened by environmental attrition or outright conversion, rescue work must start early in the game. An unsecured area should be monitored by landowner contact annually.
3. Not every landsaving effort will succeed. Sometimes the counter-vailing forces are so influential on various levels of government that the citizens lose the battle, or the citizens cannot raise sufficient monies to purchase the natural area in time.
4. Local dedication is often the key to preserving a natural area, but in thinly populated regions this local concern may, alas, be lacking.
5. The present land taxation system in Ontario must be changed to encourage preservation by private owners. A privately owned scenic area or wetland may have great public value, but the owner receives no compensation under our present assessment system.
6. As the need to preserve biological diversity becomes more widely recognized, conservation planning becomes more systematic, involving more land conservation institutions working together.
7. Conservationists often need a great tenacity of purpose to overcome many obstacles during the course of securing an area. The persistent ones win.
8. Often, one finds that the actions of private landowners will, through the sale, donation or private stewardship of their land, significantly contribute to the long term protection of a site.

The case histories briefly portrayed here and throughout the book represent the different procedures applied to secure natural heritage sites in Ontario. Other noteworthy examples are not included due to lack of space and their similarity to those presented. Though each example has a different history, they can be categorized as follows:

1. Acquisition by a non-government organization entirely from private funding with management by that organization.

Mandaumin Woods	Lambton Wildlife Incorporated
Short Hills and Spooky Hollow	Hamilton Naturalists Club
Stone Road Alvar	Federation of Ontario Naturalists
Thickson Woods	Thickson Woods Heritage Assn.

2. Acquisition and/or management by a government agency, often in response to encouragement or pressure from private agencies or individuals.

Prince Edward Point	Canadian Wildlife Service
Schreiber Channel	Ministry of Natural Resources
Trillium Woods and Hawk Cliff	Ministry of Natural Resources

3. Acquisition by a government or private agency, financed by a pooling of private donations and government grants. Management usually by the public agency.

Bruce's Caves and Marshall Woods	Grey-Sauble C.A.
Wawanosh Wetlands	St. Clair C.A.
Peter's Woods	Ministry of Natural Resources
Ojibway Prairie	Ministry of Natural Resources

4. Continued private ownership where the owner intends to preserve the site in its natural condition.

Cemetery Bog	Bruce Peninsula
Shaw Woods	Renfrew County
Belgrave Creek	Maitland Valley C.A.
Fraser Scenic Easement	Ontario Heritage Foundation
Mara Forest	Ducks Unlimited

5. Donations of heritage lands or money to buy heritage lands.

Great Manitou Island	Ontario Heritage Foundation
Gillies Woods	Town of Arnprior
Scotsdale Woods	Ontario Heritage Foundation

6. Heritage sites not yet protected by a public or private agency, but where landowner contact programs or purchase negotiations are necessary.

Alfred Bog	Prescott County
Carter Bay	Manitoulin Island
Fishing Islands	Lake Huron

7. Former natural areas now partially or completely converted to other uses.

Bradley Marsh
Walmsley Woods
Warbler Woods

Lake St. Clair
Toronto
London

SITES PURCHASED BY NON-PROFIT GROUPS:

A variety of naturalists' associations and other non-profit groups have been active in protection of natural areas through direct purchase, often raising the necessary funds through local public subscription. While this traditional approach can be very effective if the purchase price is within the reach of the organization, a non-profit group must be incorporated to hold legal title to the land.

MANDAUMIN WOODS

This natural area is a 10 hectare Carolinian woodlot near Sarnia, long treasured by local naturalists for its rich flora and birdlife. In 1972, members of Lambton Wildlife Incorporated (LWI) discovered the woods were up for sale with an offer already received from a subdivider. The principals of LWI optioned the land from the sympathetic owner, who allowed them two years to complete the purchase. A fund-raising campaign, together with cash-raising devices such as teas, auctions and card sales, allowed them to meet their \$10,500 target on time. This success has encouraged the expanded club to raise additional funds to buy other threatened areas.



G CLEMENTS

This acquisition illustrates the preservation of a smaller nature reserve by direct purchase with no involvement by public agencies or foundation funding. Lambton Wildlife Incorporated safeguards the property and pays the taxes — a good route if the property is small and the price tag within reach of naturalists' pocket books.

SHORT HILLS AND SPOOKY HOLLOW

The Hamilton Naturalists Club (HNC) has an outstanding record of heritage land acquisition, much of it due to the leadership and determination of Marion Shivas. In 1961, the club bought, through public subscription, 38 hectares in Norfolk County near Vittoria, called Spooky Hollow. Cloaked with mature Carolinian forest and traversed by a clear stream, this reserve protects several species now rare in the region.

In 1978, the club financially assisted the Long Point Region Conservation Authority in acquiring an adjoining 76 hectares to provide a link, so important for wildlife, with Turkey Point Provincial Park.



HAMILTON NATURALISTS CLUB

Short Hills, 30 hectares of rolling Carolinian Forest near Fonthill in Lincoln County, was purchased by the HNC in 1967. An open-end mortgage on the property was paid off by the club in six months. The forest supports magnificent specimens of Cucumber Magnolia, Tulip Tree and Flowering Dogwood.



DONALD KIRK

STONE ROAD ALVAR

The southwestern portion of Pelee Island supports a concentration of prairie, alvar and Carolinian plants, many rare or unique to Canada. An alvar is a specialized habitat characterized by periodic extremes of flooding and drought. This area is the last location of the blue racer snake — an endangered species in Canada. Since the area was threatened with subdivision, the Federation of Ontario Naturalists purchased 42 hectares in 1984 with money from the Ontario Heritage Foundation's revolving fund. FON has enlisted the help of the Nature Conservancy of Canada to raise funds to pay back the loan. The alvar, classed as an Area of Natural and Scientific Interest by the Ministry of Natural Resources, will be managed by the FON. Management will include trails to confine visitors whose numbers could damage the flora and controlled burns to perpetuate the prairie species.



DENNIS BARRY

THICKSON WOODS

A majestic 6 hectare residual pine-hardwood forest still exists on the shore of Lake Ontario between Oshawa and Whitby — saved by the courage and initiative of Dennis Barry and the Thickson Woods Heritage Association. A shoreline concentration of migrating and resident birds among the lofty trees and adjoining marsh provides a rich treasure for local naturalists. When the owner started to log the woods in 1983, concerned citizens banded together and bought the property for \$90,000. A \$50,000 mortgage must still be paid off. You are invited to visit this rescued legacy to enjoy its natural value, and, if inspired, to help reduce the mortgage (Thickson Woods Heritage Foundation, Box 541, Whitby, Ontario L1N 5V3).

In cases such as Thickson Woods, where the extremely high costs of acquisition have resulted in a financial burden for its rescuers, the advantages of starting early and working cooperatively with other agencies are particularly evident.

SITES PROTECTED BY GOVERNMENT AGENCIES WITH ENCOURAGEMENT FROM CITIZEN ORGANIZATIONS:

Outright acquisition of natural areas by government agencies has been an important traditional method for protection. Federal agencies such as the Canadian Wildlife Service and Parks Canada occasionally become involved in areas of national significance, but most activity takes place on the provincial scene. At either level, however, the active support and often the tireless pushing of concerned citizens are essential to ensure action.

The Ministry of Natural Resources has been a leading agency, primarily through the provincial parks system. Many of the areas purchased as nature reserves in recent years have been proposed and supported by naturalist groups. Now, as a member of the Natural Heritage League, the Ministry is increasingly receptive to cooperative projects for natural area protection.



M.D. KIRK

PRINCE EDWARD POINT

Prince Edward Point National Wildlife Area encompassing 560 hectares is often called the Point Pelee of Lake Ontario. High costs prevented the Kingston Field Naturalists (KFN) from buying the Point in the 1960's. The KFN proceeded to study and document a wildlife area of continental significance, particularly as a staging area for migrating birds. Prince Edward County, in 1976, designated the area as "Recreational Resort" in its new Official Plan. This designation pushed the naturalists into further action leading to the Point's acquisition by the Canadian Wildlife Service. Canada's first National Wildlife Area for non-game species is a tribute to the 20-year perseverance by members of the KFN who were constantly told "you cannot succeed". It also demonstrates the importance of sound data collection in order to effectively "sell" the significance of threatened sites to government agencies.



MINISTRY OF NATURAL RESOURCES

SCHREIBER CHANNEL

Along the rugged north shore of Lake Superior, the Ministry of Natural Resources has set aside a 13 hectare parcel as the Schreiber Channel Provincial Nature Reserve. This reserve was created in 1979 by transferring the land base from Crown land to Provincial Park status. It now protects one of Ontario's most significant rock outcrops.

The most important features of this reserve are circular mounds of sedimentary stone called chert, which contain a diverse array of fossil life forms. Some of these fossils, approximately 1.6 billion years old, are found nowhere else in the world but in this rock formation. They are very primitive, including blue green algae, budding bacteria and other unknown forms. Some researchers have suggested that they represent experimental life forms developed during massive changes in the earth's atmosphere. The Schreiber Channel site also displays a contact between very old igneous rocks and a younger sedimentary layer, whose origins are separated by 500 million years of erosion.

Even in a relatively inaccessible spot such as this, management plans are needed to prevent the unauthorized removal of rock samples and to maintain the outcrop's natural features.



W. N. MAHER

TRILLIUM WOODS AND HAWK CLIFF

Trillium Woods near Woodstock is a small remnant of the majestic hardwoods that once covered much of Southern Ontario. It is noted for its spectacular display of trilliums during May, with a variety of green and white patterns on the normally white sepals. Now owned and managed as a Ministry of Natural Resources Nature Reserve, it was preserved largely through the efforts of the Woodstock Field Naturalists and in particular, Mrs. Carol Rolfe, who campaigned tirelessly for the Ministry of Natural Resources to purchase it.



MARSHALL FIELD

HAWK CLIFF

The Ministry has also begun to use other techniques for the protection and appreciation of natural features, such as a landowner agreement which allows public access to the raptor viewing area at Hawk Cliff on the shores of Lake Erie near Port Stanley.

SITES PURCHASED BY A POOLING OF DONATIONS AND GOVERNMENT FUNDS:

A most effective means to encourage government action is picking up part of the cost, a cooperative route that has been followed successfully by the Nature Conservancy of Canada and a number of other non-profit groups. Because Conservation Authorities are normally eligible for a provincial grant on approved projects, they have been frequent partners in these joint land-saving actions. Ontario's private charitable Foundations have been especially generous in participating in these cooperative efforts.



FEDERATION OF ONTARIO NATURALISTS

BRUCE'S CAVES

A series of caves along the face of the Niagara Escarpment east of Warton was created by a post-glacial lake 8000 years ago. Bruce's Caves Conservation Area was purchased in 1970 by the Sauble Valley Conservation Authority by means of provincial grants and a donation from the Federation of Ontario Naturalists. The area was recently enlarged to include a complex of forested slope through funding from the Nature Conservancy of Canada and matching government grants.



NATURE CONSERVANCY OF CANADA

MARSHALL WOODS

Marshall Woods, a primeval 10 hectare mixed forest along the Niagara Escarpment near Meaford, hosts Ontario's largest white cedar and a bounty of rock ferns on rugged moss-covered talus slopes. It was purchased by the Nature Conservancy of Canada in 1966 from a 90 year old farmer who wanted the woods to survive him and transferred to the North Grey Conservation Authority for maintenance and upkeep. The Authority later bought 94 hectares of buffer forest lands on Rocklyn Creek adjacent to the area.



DONALD SMITH

WAWANOSH WETLAND PARK

The Nature Conservancy is not the only landsaving group that has discovered the advantages of working cooperatively with Conservation Authorities.

In 1980, vigilant members of Lambton Wildlife Incorporated used a similar cooperative approach for 43 hectares of surplus government land bordering Highway 402 near Sarnia. The property, once a lake, had been drained in the nineteenth century and its rich muck soil sold to market gardeners. Subsequent excavations of borrow pits have created extensive ponds heavily used by water birds of the Lake Huron flyway.

The St. Clair Region Conservation Authority agreed to buy the landlocked property if access could be acquired and if sufficient donations were forthcoming to meet the 50% provincial grants. The access problem was resolved after some difficulty. Donations for purchase and development came from Lambton Wildlife Incorporated (\$10,000) and the Nature Conservancy of Canada. In a region where wetlands are rapidly vanishing, this created one was protected through a determined group of local citizens working with existing conservation agencies.

While they may not fit neatly into the traditional definition of “natural” areas, these ponds illustrate that some disturbed sites possess considerable heritage value.

PETER'S WOODS

An almost primeval 32 hectare forest north of Cobourg in Northumberland County exists today due to the efforts of the Willow Beach Naturalists Club and the publicity for its preservation given by the late Peter Schultz, owner of the Port Hope Guide. The naturalists raised \$23,000 in 1969 to buy the woods, but the price tag was higher. The Club successfully appealed to the then Minister of Lands and Forests to make up the difference. The donated money was proof of the people's will and today the Ministry of Natural Resources has the custody and management of this piece of Ontario's heritage.



M.D. KIRK

At the opening ceremony May 14, 1978, Mother Nature played no favourites.

OJIBWAY PRAIRIE

The City of Windsor, the Ministry of Natural Resources and the Nature Conservancy of Canada have contributed to the acquisition of 24 properties in this 90 hectare Nature Reserve. This tall-grass prairie is the finest remaining tract in Canada, containing 60 plant species of western affinity and some southern fauna. Management techniques such as annual burning applied by the Ministry of Natural Resources maintain the prairie character of this area. Leap-frog development from Windsor may eventually surround the prairie, but its future is protected by civic pride and a responsible custodian.



PAUL PRATT

SITES UNDER CONTINUING PRIVATE STEWARDSHIP:

In many cases, the best possible owner for a natural area is a sympathetic individual. Landowner contact programs are intended to identify and support these environmentally-responsible owners and in some cases more formal protection arrangements can be made.



FEDERATION OF ONTARIO NATURALISTS

CEMETERY BOG

The most significant 12 hectare portion of a Bruce Peninsula spruce-cedar sphagnum bog, rich in endemic flowers, was purchased in 1971 by Les and Isobel Greenop of Lion's Head and Sarnia. This action probably prevented the bog's destruction by drainage. Its wildflowers are protected by the watchful eye of a neighbour, but future preservation will depend on a continuity of caring ownership. Some of Ontario's best heritage properties are in good private hands and will likely remain so.



SHAW WOODS

A primeval 48 hectare remnant of the mixed Great Lakes-St. Lawrence Forest at Lake Dore in Renfrew County shelters record size trees of various species. A 138-year old family legacy of lumbermen Don and Herb Shaw, this heritage has been preserved by an agreement, still verbal, between the owners, the Nature Conservancy of Canada and the National Museum of Natural Sciences. White pine up to 48 metres in height are found here.



MAITLAND VALLEY CONSERVATION AUTHORITY

BELGRAVE CREEK

The natural habitat of southern Ontario's waterways is often threatened by non-point source pollution from agriculture, especially sediment. On Belgrave Creek, near Wingham, the Maitland Valley Conservation Authority set up a cooperative program with local farmers to address this problem.

All of the management activities along the 14 km length of the stream took place on private lands, with the Authority and the Ministry of Natural Resources providing 85% of the necessary funds and the landowner the other 15%. Fencing to exclude cattle, construction of proper cattle crossings, alternative water supplies, and reforestation along the creekbank were the major activities undertaken. Some landowners devoted up to 4 hectares of floodplain land to these conservation activities. Virtually all landowners contacted agreed to cooperate.

These erosion control measures, along with in-stream fish habitat improvements financed by MNR, have significantly improved water quality and brought about dramatic increases in natural brook trout reproduction. The success of this program rests in large part on the willingness of the Authority to work cooperatively with farmers and other agencies to rescue a threatened natural resource.

FRASER SCENIC EASEMENT

Early in 1986, the Ontario Heritage Foundation accepted a scenic easement on a 137 hectare property near Creemore owned by Mr. Ross Fraser. The land, located on the edge of the Niagara Escarpment, is a rolling patchwork of woodlots, pasture, cultivated fields and stream valleys. It has spectacular vantage points, with a commanding 180 degree vista towards the east from the highest point on the property. On a clear day, both Kempenfelt Bay to the north and the C.N. Tower to the south can be seen.

The scenic easement will ensure that the aesthetic quality of this land will remain intact in future. As well, the easement contains provisions for the future development of a scenic viewing area by some public agency. The OHF is currently exploring ways of estimating the value of this easement so that an appropriate donation receipt can be issued.

As well as an illustration of the public-spirited generosity of one landowner, this easement is a good example of the kind of cooperation sponsored by the Natural Heritage League. Mr. Fraser originally began discussions through his contacts with the Coalition on the Niagara Escarpment. His proposal for an easement was encouraged by the Niagara Escarpment Commission and the easement itself is held by the Ontario Heritage Foundation. This kind of cooperative network has been greatly enhanced by the formation of the Natural Heritage League.

MARA FOREST

As part of their program to enhance wetland habitat for breeding waterfowl, Ducks Unlimited Canada (DU) has management agreements with over 350 Ontario landowners. The Mara Forest project, a 26 hectare portion of a Simcoe County Forest east of Orillia, is typical of the kind of agreements used by this private conservation organization.

The Mara Forest site was identified for potential management through DU's systematic reconnaissance program of likely wetlands. The owner (in this case the County of Simcoe) was initially contacted by letter to determine whether there was interest in a cooperative project. After site visits and further discussions, a 21-year legal agreement was drawn up for discussion with the landowner, outlining the responsibilities of both parties. In this case, DU provided the funds and logistics for management and the owner agreed to protect the wetland for the life of the agreement and allow maintenance activities. Provision of public access is not part of DU agreements.

Construction of a water control structure was carried out by contractors working for DU in 1984. Water levels in the wetland are now controlled to develop a diversity of aquatic vegetation in a pattern of open water and marsh most valuable to ducks.

This kind of cooperative approach, in which the only benefit to the landowner is the satisfaction of having helped improve his land for wildlife, has been very effective in enhancing the prospects for waterfowl in many parts of Canada.

DONATIONS OF LAND OR MONEY

Landowners who cherish the natural values of their property often seek a public agency that can ensure those values will be maintained after they are gone. Other individuals, who cannot donate property directly, will gladly furnish the necessary funds to allow the acquisition of outstanding natural areas. In either case, there is a range of alternatives that can work well.



NATURE CONSERVANCY OF CANADA

GREAT MANITOU ISLAND

This large island in Lake Nipissing supports a 200 nest heronry and nesting ospreys. A developer wished to build cottages on this privately held land.

The Nature Conservancy of Canada purchased the island in 1981 with a guarantee from the Ministry of Natural Resources to assume the acquisition costs later. Meanwhile, a private donor contacted by the Nature Conservancy of Canada routed \$310,000 through the Ontario Heritage Foundation, which then purchased the area from the Nature Conservancy of Canada. Manitou Island is now managed by the Ministry of Natural Resources.



M.D. KIRK

GILLIES WOODS

This impressive remnant of the great primeval forest that once cloaked the Ottawa Valley lies within the town limits of Arnprior. The Gillies family donated the woodlot to the people of Renfrew County in 1981 — a good example of land philanthropy.

Visitors can readily view the majestic trees from the trail, either on foot or bicycle.



ONTARIO HERITAGE FOUNDATION

SCOTSDALE WOODS

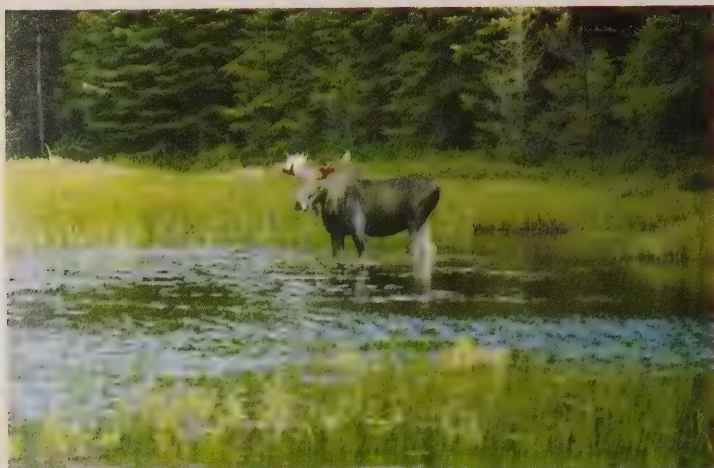
Scotsdale Woods are part of the 216 hectare Bennett estate north of Georgetown on the Niagara Escarpment. This magnificent property was donated to the Ontario Heritage Foundation in 1983. The undisturbed climax hardwoods represent an excellent example of Southern Ontario original forest. Another part of the property includes a significant lowland forest, containing several orchids.

The Bennett estate also includes farmland and farm buildings, so it will be managed for a variety of public uses, including protection of its natural heritage. Because the Ontario Heritage Foundation is a provincial government agency, the donors were able to realize maximum tax advantages on their estate.

Other non-government conservation agencies, such as the Federation of Ontario Naturalists and the Nature Conservancy of Canada, can also accept bequests of property as charitable donations. Some Conservation Authorities have also set up Foundations for this purpose. However, recent changes in Ontario's assessment procedures have greatly increased the burden of property taxes on these areas and some agencies are becoming more reluctant to accept land bequests unless some means for covering these costs is provided.

SITES WHERE PROTECTION EFFORTS ARE ONGOING:

The agenda of natural areas protection in Ontario is far from complete. A few examples of critical areas in need of protection are presented here. In some cases, landowner contacts are underway; in others, major acquisition programs may be the only answer.



M.D. KIRK

ALFRED BOG

Alfred Bog is a 3,800 hectare island of peat in a sea of farmland southeast of Ottawa. The bog harbours a large moose population, many bog orchids and two plants unique to Ontario.

In 1983 the Ontario Municipal Board allowed a re-zoning, from conservation to agriculture, of 1,520 hectares owned by Hardee Farms, despite opposition from naturalist groups and predictions of future adverse hydrological effects on the South Nation River. Though Alfred Bog is classified as a candidate nature reserve, the Ministry of Natural Resources did not make representations at the hearing.

Drainage and development for market gardening would be very costly, with some drainage expenses coming from the public purse. The Ottawa Field Naturalists Club recently bought a 20 hectare tract of the bog in order to have some legal standing in contesting its drainage. The bog still awaits a rescuer, but in a preservation effort of this magnitude, cooperation among a number of agencies is vital.



M.D. KIRK

CARTER BAY

Carter Bay on Manitoulin Island is one of the best remaining examples of a highly threatened ecosystem, the Great Lakes sand dune shoreline. The dunes themselves are a 80 hectare portion of the 2700 hectare property on the south shore of the island which was purchased 20 years ago for summer resort development. The owners have been frustrated in their attempts to create saleable subdivision lots due to physical constraints of the terrain. However, the large asking price precludes any Canadian conservation agency from making a realistic offer. Meanwhile, the Township would like the dunes for public recreation — a move which could be fatal to the endemic plants and the endangered plover nesting on the beach. Both already suffer damage from uncontrolled dune buggies. Carter Bay is an example of not starting soon enough. The opportunity to save it arose before protective agencies or government had the awareness and will to act. Another opportunity may never come.



GEORGE PECK

FISHING ISLANDS

The 116 Fishing Islands that grace the waters of Lake Huron at the base of the Bruce Peninsula vary from dolomite reefs to forested isles. The high value of the fishery and the extensive use of the islands by waterbirds for nesting and migratory staging led the Ministry of Natural Resources to designate this as an Area of Natural and Scientific Interest (ANSI). One third of the islands are privately owned. Fourteen were purchased by the Sauble Valley Conservation Authority, assisted by funds from the Canadian National Sportsman's Fund. The smallest of them remain under the ownership of the Crown. A pilot landowner contract project in 1984 determined that private landowners respect the natural values of their islands and are good custodians. However, public ownership of the important colonial bird nesting islands may be necessary for management activities. Protection of the waters from pollution and over-fishing is also essential.

SITES WHICH HAVE NOW BEEN PARTLY CONVERTED TO OTHER USE:

Sometimes, even the most just causes are lost. But by looking at a few examples of those losses, we can perhaps understand better the forces that work against the preservation of natural areas and learn some lessons for future battles.



ST. CLAIR REGION CONSERVATION AUTHORITY

BRADLEY MARSH

Several years ago, Bradley Marsh on Lake St. Clair was drained and converted to cornfields. The loss of one of Ontario's richest waterfowl wetlands illustrates the enormous pressure on private wetland owners to convert their holdings to cash-productive farmland, especially when faced with high land taxes. Unless the assessment and taxation system is revised in the near future, many other privately owned wetlands will disappear into cropland and pasture. The decline of remaining wetlands and the wildlife nourished in them is accelerated by the absence of tax incentives and the availability of drainage subsidies.



M.D. KIRK

WALMSLEY WOODS

Toronto Field Naturalists (TFN) included in their list of threatened natural areas a prime woodland west of Beth Nealson Avenue in East York, flanked by hydro lines and Walmsley Ravine. Here, a mature forest sheltered nesting hawks and a host of spring flowers, including ginseng and five species of ferns, all now rare or unknown in the vicinity of Toronto.

The TFN's repeated urgent appeals to East York Council and the landowner, Ontario Hydro, were unsuccessful, largely because the land had been leased to an industrial developer five years previously and had already been zoned industrial. TFN's request to cancel the lease did not reach the attention of the Chairman of Ontario Hydro until it was too late.

On Sunday, August 25, 1980, the entire woodlot was bulldozed flat prior to any agreement being signed by the developer and Ontario Hydro for development.

The lesson: start early and start at the top. As the Civil War General said "get there first with the mostest men".

WARBLER WOODS

Warbler Woods was 64 hectares of mature Carolinian Forest on the Ingersoll Moraine west of London. The rich bird life and flora (including American Chestnut) had attracted local naturalists and hikers for decades.

In 1971 a developer bought the woods for housing and sought to annex the woods to the city. A narrow strip of 20 hectares, too hilly for housing, was to be dedicated as parkland. Five years later, the McIlwraith Field Naturalists and local ratepayers contested the project, but the City Council and Planning Board approved the plan. Subsequently, Warbler Woods was classified as an Area of Natural and Scientific Interest by the Ministry of Natural Resources and further studies revealed the potential loss of a regionally unique natural area.

A 1983 OMB decision dismissed the environmental values and since the price set on the woods was too high for an alternative buyer, the developer was allowed to proceed. After participating in this unsuccessful OMB battle, John Cartwright and Rosemary Walters of London made the following observations:

“Appeals from municipal decisions to the Ontario Municipal Board pose two major problems for environmentalists. First, the hearing officers have no scientific expertise and are rarely capable of evaluating the conflicting scientific testimony they may hear. Second, an appearance before the OMB requires professional legal counsel and usually paid expert witnesses, whose expertise consists not so much in their scientific credentials as in their ability to put the best construction on the point of view they are being paid to uphold. A scientist who exercises normal caution in qualifying his statements can be more of a liability than a help in these adversarial proceedings, where the objective is not so much a disinterested search for “the truth”, as a putting forward of the best possible case for one’s side. Their proceeding also cost a great deal of money and environmental groups are normally fighting not for some pecuniary gain for themselves, but for a more altruistic belief in the long-term value of preserving some natural habitat” (Cartwright and Walters, 1984).

Warbler Woods was a landmark contest. It showed the need for a Hearing Board of experts required to ascertain the values being lost by a development and to look at alternatives that would preserve those values. It showed the need for previous zoning and designation of Environmentally Sensitive Areas to alert developers to the difficulty they may encounter. It showed that heritage people must get into the political process at all government levels and get there early if they are to be effective.



ROSEMARY WALTERS



ROSEMARY WALTERS

Warbler Woods before development.

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APPENDIX A - SAMPLE OPTION FORM

THIS OPTION AGREEMENT made the _____ day of _____, 198 .

BETWEEN

hereinafter called the "Owner"

OF THE FIRST PART;

and -

THE ONTARIO HERITAGE FOUNDATION,
a body corporate continued by the
Ontario Heritage Act, R.S.O. 1980,
c. 337,

hereinafter called the "Foundation"

OF THE SECOND PART.

WITNESSETH that in consideration of the sum of _____ of lawful money of Canada now paid by the Foundation to the Owner (the receipt of which is hereby acknowledged) the Owner grants to the Foundation the exclusive and irrevocable option to purchase for the sum of \$ _____, certain lands and premises being

(hereinafter called the "Property") and containing _____ acres, more or less.

This option is exercisable by the Foundation by notice in writing delivered to the Owner in person or by registered mail addressed to the Owner prior to midnight of _____ after which time this option shall be null and void and the Owner shall be entitled to retain the sum paid for the granting of the option. If exercised by registered mail, notice thereof shall be conclusively deemed to have been received by the Owner on the actual date and time of mailing.

The Foundation may assign this option and the agreement of purchase and sale arising therefrom, and upon such assignment the Foundation's liability herein shall cease.

Upon exercise of this option by the Foundation, it shall then constitute a binding Agreement of Purchase and Sale on the following terms and conditions:

1. This Agreement shall be completed within _____ days following the exercise of the Option.
2. Monies paid by the Foundation as consideration for this option shall be credited to the Foundation as part payment of the purchase price on closing. The Foundation shall pay the balance of the purchase price on closing, subject to usual adjustments.
3. Provided the title to the Property is good and free from encumbrances, except local rates. The Foundation is not to call for the production of any title deed, abstract of title, survey, proof or evidence of title other than those in the Owner's possession or under his/her/its control. The Owner agrees that he/she/it will deliver, if possible, any sketch or survey of the Property to the Foundation as soon as possible and prior to the last day allowed for examining title. The Foundation is to be allowed 30 days from the date of the exercise of the option to investigate the title at its expense and if within that time it shall furnish the Owner in writing with any valid objection to title or to any outstanding municipal or provincial orders which the Owner shall be unable or unwilling to remove or correct and which the Foundation will not waive, this agreement shall, notwithstanding any intermediate acts or negotiations, be null and void. Save as to any valid objection so made within such time, the Foundation shall be conclusively deemed to have accepted the title of the Owner to the Property.

4. The Property shall remain at the risk of the Owner until closing. No insurance policies shall be assigned on closing.

5. The deed or transfer shall, save for the Affidavit of Value of the Consideration, be prepared at the expense of the Owner in form acceptable to the Foundation's solicitor. The Foundation shall pay the cost of registration of the deed.

6. Where applicable rents, realty taxes and local improvements, water and assessment rates and the cost of fuel shall be apportioned and allowed to the date of completion (the day itself to be apportioned to the Foundation). No insurance policies shall be assigned in closing.

7. The Owner covenants and agrees that, during the term of this Agreement or any extension thereof, he/she/it will do nothing which will or might damage or detract from the natural, aesthetic, scenic, architectural, historic or archaeological value or interest of the Property and the structures situate thereon.

8. If at any time prior to closing, in the Foundation's opinion, the natural aesthetic, scenic, or archaeological value or interest of the property is destroyed or damaged by any cause whatsoever and to such an extent as to render the land of insufficient interest to the Foundation, the Foundation shall have the right to declare this Agreement null and void and of no further effect and the deposit shall be returned to the Foundation forthwith. Any tender of documents or money hereunder may be made upon the Owner or the Foundation or upon the solicitor acting for the party on whom tender is desired and it shall be sufficient that a negotiable certified cheque be tendered instead of cash.

9. This written Agreement embodies the entire agreement of the parties with regard to the matters dealt with herein, and no understandings or agreements, verbal, collateral or otherwise, exist between the parties except as herein expressly set out.

10. The covenants and agreements set out in this Agreement shall run with the Property and shall enure to the benefit of and be binding upon the parties hereto and their heirs, executors, administrators, successors and assigns, as the case may be.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED

In the presence of:

Witness

Witness

Per:

c/s

THE ONTARIO HERITAGE
FOUNDATION

Per:

Chairman

c/s

Secretary

APPENDIX B — ADDRESSES OF ONTARIO CONSERVATION ORGANIZATIONS

NON-GOVERNMENT ORGANIZATIONS

Bruce Trail Association
Box 857, Hamilton L8N 3N9
416-529-6821

Canadian Botanical Assoc.
c/o Mr. G. Mulligan, Biosystematics Research
Central Experimental Farm
Ottawa K1A 0C6

Canadian Council on Ecological Areas
2513 Amherst Ave., Sydney, B.C. V8L 2H3
604-656-0367

Canadian Environmental Law Association
243 Queen St. W., Toronto M5V 1Z4
416-366-9707

Canadian Nature Federation
75 Albert St., Ottawa K1P 6G1
613-238-6154

Canadian Wildlife Federation
1673 Carling Ave., Ottawa K2A 3Z1
613-689-1507

Coalition on the Niagara Escarpment
355 Lesmill Rd., Don Mills M3B 2W8
416-444-8419

Conservation Council of Ontario
74 Victoria St. East, Toronto M5C 2A5
416-961-6830

Ducks Unlimited Canada
240 Bayview Crescent, Barrie L4N 4Y8
705-726-3825

Federation of Ontario Naturalists
355 Lesmill Rd., Don Mills M3B 2W8
416-444-8419

Field Botanists of Ontario
105 Mocassin Dr., Waterloo N2L 4C2
519-886-3174

Heritage Resources Program
University of Waterloo
c/o Dr. J. Gordon Nelson
Faculty of Environmental Studies
Waterloo N2L 3G7

Interpretation Canada
Box 2667, Station O
Ottawa K1P 5W7

Man and the Biosphere Program
Faculty of Environmental Studies
University of Waterloo, Waterloo N2L 3G1
519-836-1211, Ext. 3061

Natural Heritage League
77 Bloor St. W., Toronto M7A 2R9
416-965-5727

Nature Conservancy of Canada
Suite 1710
2200 Yonge St., Toronto M4S 2C6
416-485-1011

National and Provincial Parks Ass'n of Canada
69 Sherbourne St, Toronto M5A 3X7
416-366-3494

Ontario Federation of Anglers and Hunters
Box 28, Peterborough K9J 6Y5
705-748-3624

Ontario Forestry Association
150 Consumers Road, Willowdale M2J 1P9
416-493-4565

Ontario Parks Assoc.
Mr. W.H. Palmer, 15 Wintemute St.
Fort Erie L2A 2N7

Ontario Shade Tree Council
70 Seaton Rd., Aurora L4G 3X1

Quetico Foundation
Suite 301, 170 University Ave.,
Toronto M5H 3B3
416-593-1391

Royal Botanical Gardens
Box 399, Hamilton L8N 3H8
416-527-1158

Sierra Club of Ontario
229 College St., Toronto M5T 1R4
416-596-7778

Soil Conservation Society of America (Ontario Chapter)
c/o Bryan Boyce, Transmission Environment Dept.
Ontario Hydro
700 University Ave., Toronto M5G 1X6

Wildlands League
69 Sherbourne St., Suite 313, Toronto M5A 3X7

Wildlife Habitat Canada
Suite 301, 1704 Carlington Ave., Ottawa K2A 1C7
613-722-2090

World Wildlife Fund
Suite 207
60 St. Clair East, Toronto M4T 1N5
416-923-8173

NATURALISTS CLUBS IN ONTARIO

(Names in parentheses are member's mailing address)

Brereton Field Naturalists
6 Springhome Rd., Barrie L4N 5H8

Quinte Field Naturalists
R.R. #1, Demorestville KOK 1WO
(Terry Sprague)

Brantford Nature Club
9 Lombard St., Brantford N3R 2C1
(Mrs. Anna Burke)

Presqu'ile-Brighton Naturalists
8 Parliament, Colborne KOK 1SO

Georgian Bay Bird and Wildlife Association
1457 Ontario St., Burlington L7R 1G6

Ontario Field Ornithologists
Box 1204, Stn. B., Burlington L7P 3S9

Kent Nature Club
114 Park Avenue West, Chatham N7M 1V9

Willow Beach Naturalists
439 Division St., Cobourg K9A 3R8
(Brian Olson)

Durham Region Field Naturalists
Box 354, Oshawa L1H 7L3

Halton Field Naturalists
Box 115, Georgetown L7G 4T1

Saugeen Field Naturalists
80 2nd St., Chesley NOG 1LO
(Clarke Birchard)

Guelph Field Naturalists
Box 1401, Guelph N1H 6N8

Resources Management Club
Land Resource Science, Univ. of Guelph N1G 2W1

Hamilton Naturalists Club
711 Concession St., Hamilton L8V 1C3

Huntsville Nature Club
Box 1603, Huntsville POA 1KO

Ingersoll Nature Club
60 King West, Ingersoll N5C 2J5
(Dr. J. Lawson)

Kingston Field Naturalists
Box 831, Kingston K7L 4X6

Rideau Trail Association
Box 15, Kingston K7L 4V6

Kirkland Lake Nature Club
Box 293, Virginiatown POK 1XO
(Percy Richter)

Kitchener-Waterloo Field Naturalists
317 Highland Rd. W., Kitchener N2M 3W6

West Humber Naturalists
Box 287, Kleinberg LOJ 1CO

Sun Parlor Nature Club
Box 234, Leamington N8H 4G3

Kawartha Naturalists Club
Box 658, Fenelon Falls KOM 1NO
(Herman Milke)

McIlwraith Field Naturalists Club
Box 4185, London N5W 5H6

Midland Penetang Field Naturalists
Box 393, Midland L4R 2J8

South Peel Naturalists Club
Box 91, Port Credit Stn., Mississauga L5G 4L5

Muskoka Field Naturalists
Box 816, Gravenhurst POC 1GO

Niagara Falls Nature Club
17 Parkland Cres., St. Catherines L2T 3T9
(Charles Pryer)

Peninsula Nature Club
Box 544, St. Catherines L2R 6W8

Nipissing Naturalists Club
17 Merlin Ave., North Bay P1A 3V6

Orillia Naturalists Club
Box 2381, Orillia L3V 6V7

Second Marsh Defense Association
R.R. #2, Orono L0B 1M0
(Jim Richards)

Ottawa Field Naturalists
Box 3264, Stn. C, Ottawa K1Y 4J5

Upper Ottawa Valley Nature Club
Box 591, Deep River K0J 1P0

Peterborough Field Naturalists
Box 1532, Peterborough K9J 7H7

Pickering Naturalists
Box 304, Pickering L1V 2R6

Richmond Hill Naturalists Club
Box 285, Richmond Hill L4C 4Y2

Lambton Wildlife Inc.
Box 681, Sarnia N7T 7J7

St. Thomas Field Naturalists
59 First Ave., St. Thomas N5R 4N3
(E. Mrbin)

Sault Naturalists Club
Box 1043, Sault Ste. Marie P6A 5N7

Norfolk Field Naturalists
R.R. #3, Langton N0E 1G0
(Ross Bateman)

Stratford Field Naturalists
384 Devon St., Stratford N5A 2Z9
(Mrs. M. Ballantyne)

Sudbury Naturalists Club
43 1/2 Diorite St., Copper Cliff P0M 1N0
(F. Mariotti)

Thunder Bay Field Naturalists
Box 1073, Thunder Bay P7C 4X8

Toronto Field Naturalists
49 Thorncrest Rd., Islington M9A 1S6
(Mrs. Mary Smith)

West Elgin Nature Club
R.R. #2, West Lorne N0L 2P0
(Bradley Reive)

Woodstock Field Naturalists
Box 912, Woodstock N4S 8A3

ONTARIO CONSERVATION AUTHORITIES

Association of Conservation Authorities of Ontario
Box 389, King City, LOG 1KO 416-833-5023

Conservation Authorities and Water Management Branch
Ministry of Natural Resources, Room 5620, Whitney Block,
Queen's Park, Toronto, MTA 1W3 416-965-6287

CONSERVATION AUTHORITIES

Ausable Bayfield
Box 2410, Exeter, NOM 1SO 519-235-2610

Cataraqui Region
Box 160, Glenburnie, KOH 1SO 613-546-4228

Catfish Creek
R.R. #5 Aylmer, N5H 2R4 519-773-9605

Central Lake Ontario
100 Whiting Ave., Oshawa, L1H 3T3 416-579-0411

Credit Valley
Meadowville, LOJ 1KO 416-451-1615

Crowe Valley
Box 416, Marmora, KOK 2MO 613-472-3137

Essex Region
360 Fairview Ave., Essex, N8M 1Y6 519-776-5209

Ganaraska Region
Box 328, Port Hope, L1A 3W4 416-885-8173

Grand River
Box 729, 400 Clyde Rd., Cambridge, N1R 5W6 519-621-2761

Grey Sauble
R.R. 4, Owen Sound, N4K 5N6 519-376-3076

Halton Region
310 Main St., Milton, L9T 1P4 416-878-4131

Hamilton Region
Box 7099, Ancaster, L9G 3L3 416-525-2181

Kawartha Region
Box 819, Fenelon Falls, KOM 1NO 705-887-3112

Kettle Creek
R.R. #8, St. Thomas, N5P 3T3 519-631-1270

Lakehead Region
Box 3476, 1136 Oliver Rd., Thunder Bay, P7B 5J9 807-344-5857

Long Point Region
Box 525, Simcoe, N3Y 4N5 519-426-4623

Lower Thames Valley
100 Thames St., Chatham, N7L 2Y8 519-354-7310

Lower Trent Region
441 Front St., Trenton, K8V 6C1 613-394-4829

Maitland Valley
Box 127, Wroxeter, NOG 2XO 579-335-3557

Mattagami Region
133 Cedar St. South, Timmins, P4N 2G9 705-264-5309

Metropolitan Toronto and Region
5 Shoreham Rd., Downsview, M3N 1S4 416-661-6600

Mississippi Valley
Box 268, Lanark, KOG 1KO 613-259-2421

Moir River
Box 698, Belleville, K8N 5B3 613-968-3434

Napanee Region
25 Ontario St. West, Napanee, K7R 3S6 613-354-3312

Niagara Peninsula
Centre St., Allanburg, LOS 1AO 416-227-1013

Nickel District
200 Brady St., Sudbury, P3E 5K3 705-674-5249

North Bay-Mattawa
Box 1215, 348 Fraser St., North Bay, P1B 8K4 705-474-5420

Nottawasaga Valley
R.R. #1, Angus, LOM 1BO 705-424-1479

Otonabee Region
727 Lansdowne St. West, Peterborough, K9J 1Z2 705-748-7347

Prince Edward Region
Box 310, Picton, KOK 2TO 613-476-7408

Raisin Region
Box 10, Martintown, KOC 1SO 613-528-4584

Rideau Valley
Box 599, Mill St., Manotick, KOA 2NO 613-692-3571

Saugeen Valley
R.R. #1, Hanover, N4N 3B8 519-364-1255

Sault Ste Marie
99 Foster Dr., Sault Ste Marie, P6A 5X6 705-949-9111

South Lake Simcoe
Box 282, 120 Bayview Ave., Newmarket, L3Y 4X1 416-895-1281

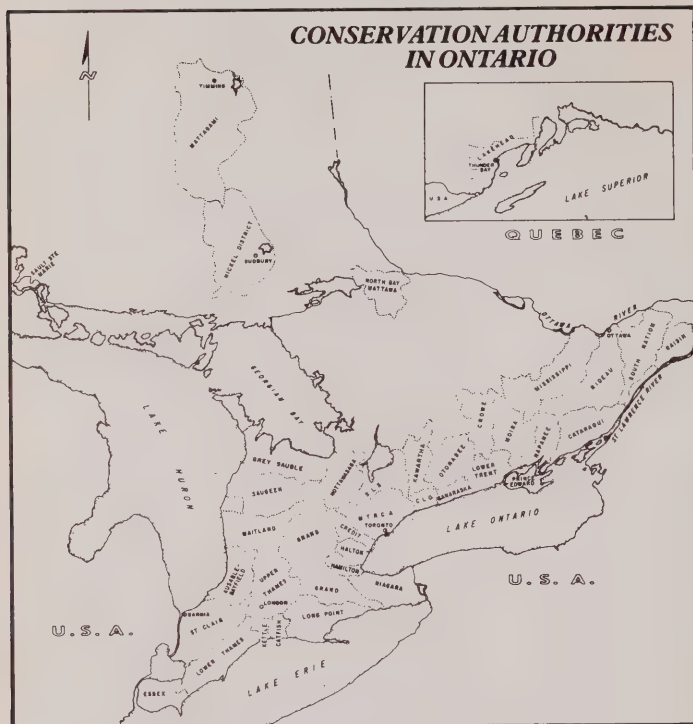
South Nation River
Box 69, Berwick, KOC 1GO 613-984-2400

St. Clair Region

205 Mill Pond Cres., Strathroy, N7G 3P9 519-245-3710

Upper Thames River

Box 6278, Station D, London, N5W 5S1 519-451-2800



GOVERNMENT AGENCIES:

Ontario Heritage Foundation

77 Bloor St. West, Toronto M7A 2R9

416-965-5727

Canadian Wildlife Service (Eastern Region)

2721 Hwy 31, Ottawa K1A 0W1

613-998-4702

Parks Canada (Ontario Region)

132 Second St., Box 1359, Cornwall K6H 5V4

Niagara Escarpment Commission

232 Guelph St., Georgetown L7G 4B1

416-453-2468

ONTARIO MINISTRY OF NATURAL RESOURCES

Parks and Recreational Areas Branch
Whitney Block, Queen's Park, 99 Wellesley St.
Toronto M7A 1W3 416-965-5160

SOUTHWEST REGION: 659 Exeter Rd., Box 5463, London N6A 4L6
519-681-5350

Aylmer District
353 Talbot West, Aylmer N5H 2S8 519-773-9241

Chatham District
435 Grand Ave. West, Box 1168, Chatham N7M 5L8 519-354-7340

Owen Sound District
611 Ninth Ave. East, Owen Sound N4K 3E4 519-376-3860

Simcoe District
645 Norfolk St. N., Simcoe N3Y 3R2 519-426-7650

Wingham District
R.R. #5, Wingham N0G 2W0 519-357-3131

CENTRAL REGION: 10670 Yonge St., Richmond Hill L4C 3C9
416-884-9203

Cambridge District
Box 2186, Beaverdale Rd., Cambridge N3C 2W1 519-658-9355

Huron District
Midhurst L0L 1X0 705-728-2900

Lindsay District
322 Kent St. West, Lindsay K9V 4T7 705-324-6121

Maple District
1041 Dufferin Street
Maple L0J 1E0 416-832-2761

Niagara District
Box 1070, Fonthill L0S 1E0 416-892-2656

EASTERN REGION: Box 2002, Kemptonville K0G 1J0 613-258-3413

Brockville District
Box 605, Oxford Ave., Brockville K6V 5V8 613-342-8524

Carleton Place District
10 Findlay Ave., Carleton Place K7C 3Z6 613-257-5735

Cornwall District
Box 1749, 113 Amelia St., Cornwall K6H 5V7 613-933-1774

Napanee District
1 Richmond Blvd., Napanee K7R 3S3 613-354-2173

Tweed District
265 Metcalfe St., Tweed K0K 3J0 613-478-2330

ALGONQUIN REGION: Box 9000, Manominee St., Huntsville P0A 1K0
705-789-9611

Algonquin Park District
Box 219, Whitney K0J 2M0 705-637-2780

Bancroft District
Box 500, Hwy. 28, Bancroft K0L 1C0 613-332-3940

Bracebridge District
Box 1138, Bracebridge P0B 1C0 705-645-8747

Minden District
Minden K0M 2K0 705-286-1521

Parry Sound District
4 Miller St., Parry Sound P2A 1S8 705-746-4201

Pembroke District
Box 220, Riverside Dr., Pembroke K8A 6X4 613-732-3661

NORTHEASTERN REGION: 199 Larch St., Sudbury P3E 5P9
705-675-4120

North Bay District
Box 3070, 277 McIntyre West, North Bay P1B 8K7 705-474-5550

Sault Ste. Marie District
Box 130, 875 Queen St. East, Sault Ste. Marie P6A 2B3 705-949-1231

Sudbury District
Box 3500, Stn. A, Sudbury P3A 4S2 705-622-7823

Temagami District
Box 38, Lakeshore Dr., Temagami P0H 2H0 705-569-3622

Wawa District
Box 1150, 22 Mission Rd., Wawa P0S 1K0 705-856-2396

Blind River District
Box 190, 62 Queen St., Blind River P0R 1B0 705-356-2234

Espanola District
Box 1340, Espanola POP 1C0 705-869-1330

NORTH CENTRAL REGION: Box 5000, 435 James St. South, Thunder
Bay P7C 5G6 807-475-1261

Atikokan District
108 Saturn Ave., Atikokan POT 1C0 807-597-6971

Geraldton District
Box 640, 208 Beamish West, Geraldton POT 1M0 807-854-1030

Nipigon District
Box 970, Hwy. 17, Nipigon POT 2J0 807-887-2120

Terrace Bay District
Box 280, Terrace Bay POT 2WO 807-825-3205

Thunder Bay District
Box 5000, 435 James St. South, Thunder Bay P7C 5G6 807-475-1511

NORTHWESTERN REGION: Box 5160, 810 Robertson St., Kenora
P9N 3X9 807-468-3111

Dryden District
Box 730, 490 Government Rd., Dryden P8N 2Z4 807-223-3341

Fort Frances District
922 Scott St., Fort Frances P9A 1J4 807-274-5337

Ignace District
Box 448, Ignace POT 1TO 807-934-2233

Kenora District
Box 5080, Kenora P9N 3X9 807-468-9841

Red Lake District
Box 5003, Hwy. 105, Red Lake POV 2MO 807-727-2253

Sioux Lookout District
Box 309, Sioux Lookout POV 2TO 807-737-1140

NORTHERN REGION: 104 4th Avenue, Cochrane POL 1CO 705-272-7014

Chapleau District
190 Cherry St., Chapleau POM 1KO 705-864-1710

Cochrane District
Box 730, 2 Third Ave., Cochrane P0L 1C0

Gogama District
Box 129, Gogama, Ontario POM 1WO 705-894-2000

Hearst District
Box 670, 631 Front St., Hearst POL 1NO 750-362-4346

Kapuskasing District
6 Government Rd., Kapuskasing P5N 2W4 705-335-6191

Kirkland Lake District
Box 129, Swastika POK 1TO 705-642-3222

Moosonee District
Box 190, Moosonee POL 1YO 705-336-2987

Timmins District
896 Riverside Dr., Timmins P4N 3W2 705-267-7951

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APPENDIX C

LIFE SCIENCE SITE DISTRICT AND 'ESA' REPORTS

Over the past two years the Ministry of Natural Resources has begun issuing reports entitled "*Life Science Areas of Natural and Scientific Interest*" A report is being produced for each site district (or landscape region) in Southern Ontario, as portrayed in Figure 29. These reports will probably be the single most useful source of general information to give a province-wide perspective on natural areas over the next few years. Since these are still being produced, it will be necessary to check with the Regional or District Offices of the M.N.R. (see Appendix B) to see whether one is yet available in your area of interest.

A second very valuable source of information are the various 'E.S.A.' or Environmentally Sensitive Area Reports now finished in different parts of Ontario. The list below, in chronological arder, provides basic references for this wealth of material. As well, at the time of printing, intensive surveys are going on in the Haldimand-Norfolk Region and in Kent and Elgin Counties. Reports will likely be available in early 1987.

Region of Waterloo — Environmentally Sensitive Areas Study. 1975. G.R. Francis and P.F.J. Eagles (eds.). Waterloo: Dept. of Man-Environment Studies, University of Waterloo.

An Ecological Study of Conservation—Recreation Areas in the Regional Municipality of Ottawa-Carleton. 1975. R.M. Reed. Ottawa: Fac. of Science and Engineering, Carleton University.

Toronto the Green. Toronto Field Naturalists Club. 1976. See also their 7 published Ravine Surveys, 1973 - 1982.

Hamilton-Wentworth Environmentally Sensitive Areas Study. 1976. Ecologistics Ltd. for Hamilton Region Conservation Authority.

Ecological Studies of Conservation—Recreation Areas in the Regional Municipality of Ottawa-Carleton. 1976. R.M. Reed. Ottawa: Fac. of Science and Engineering, Carleton University.

Natural Areas in Oxford County: A Preliminary Survey. 1976. S.G. Hilts (ed.). London: Dept of Geography, University of Western Ontario.

South Wellington Environmentally Sensitive Areas Study. 1976. P.F.J. Eagles (ed.). Guelph: Centre for Resources Development, Univ. of Guelph.

Northumberland County Environmentally Sensitive Areas Study. 1976. S.L. Hall and R. Jones (eds.). Peterborough: Dept. of Biology Trent University.

Action and Reaction: Towards An Environmentally Sensitive Area Policy for the Oak Ridges Moraine. 1976. C. Buchanan, et al. Toronto: M.T.R.C.A.

Significant Natural Areas along the Niagara Escarpment. 1976. S. Macdonald, et al. Toronto: Park Planning Branch, Ministry of Natural Resources.

North Wellington Environmentally Sensitive Areas Study. 1977. N. Elrick, et al. Guelph: Centre for Resources Development, University of Guelph.

South Grey Environmentally Sensitive Areas. 1978. M. Blackman, et al. Guelph: Centre for Resources Development, University of Guelph.

Halton Region Environmentally Sensitive Areas Study. 1978. Ecol. and Env. Adv. Com. Oakville: Halton Region Planning Department.

Environmentally Sensitive Areas of Brantford, Oakland and south Dumfries Townships in Brant County. 1978. P.F.J. Eagles, et al. Waterloo: Dept. of Man-Environment Studies, Univ. of Waterloo.

Environmentally Sensitive Areas of Burford and Onandaga Townships in Brant County. 1979. P.F.J. Eagles, et al. Waterloo: Dept. of Man-Environment Studies, Univ. of Waterloo.

Cavan Township Environmentally Sensitive Areas Study. 1979. J.A. Chamberlain, Peterborough: Otonabee Region Conservation Authority.

Lincoln County Environmentally Sensitive Areas. 1979. R.F. Brady (ed.), St. Catharines: Dept. of Geography Brock University.

Credit River Watershed Environmentally Significant Areas. 1979. Ecologists Ltd., Mississauga: Credit Valley Conservation Authority.

Lambton County Preliminary Environmentally Significant Areas. 1979. D. Hoffman, et al. Sarnia: Lambton County Planning Board.

Environmentally Significant Areas of Southern Bruce County. 1980. S.G. Hilts and M. Parker (eds.), Guelph: Centre for Resources Development, Univ. of Guelph.

Emily (S.E. Corner), Ennismore, Smith, North and South Monaghan, and Otonabee Townships Environmentally Sensitive Areas Study. 1980. J.A. Chamberlain, Peterborough: Otonabee Region Conservation Authority.

Regional Municipality of Niagara Environmentally Sensitive Areas, 1980. R.F. Brady (ed.). St. Catharines: Dept. of Geography, Brock Univ.

Environmentally Significant Areas Study, by Ecologists Ltd., 1982. South Lake Simcoe Conservation Authority.

Perth County: Preliminary Environmentally Sensitive Areas Survey, 1982. D. Hoffman, L. Lamb and a large Research Team. Waterloo: Faculty of Environmental Studies.

Significant Natural Areas of Middlesex County. 1982 S.Hilts and F. Cook (eds.). Guelph: School of Rural Planning and Development, Univ. of Guelph, and London: McIlwraith Field Naturalists Inc.

Environmentally Significant Areas of the Essex Region. 1983. M.J. Oldham. Essex: Essex Region Conservation Authority.

Natural Areas of the Niagara Region, Preliminary Survey. 1985 Planning and Development Department. Publication No. 72. Thorold: The Regional Municipality of Niagara.



M.D. KIRK

— NOTES —

These primeval woods at Sauble Beach were saved from the bulldozer by the Nature Conservancy of Canada, the Conservation Authorities and private donors working together in close co-operation.



The
Ontario Heritage
Foundation

BILD

ONTARIO 



Ministry
of Citizenship
and Culture

Ontario



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